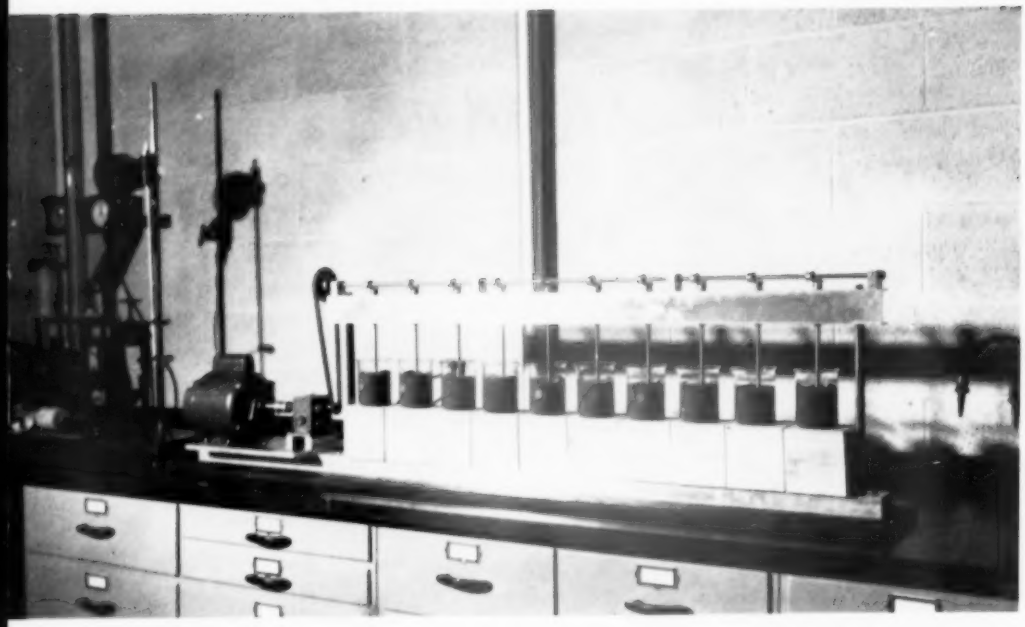
Rock Products

NOVEMBER 1957

THE INDUSTRY'S RECOGNIZED AUTHORITY



PCA LAB PART III

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How good are your trade show exhibits?

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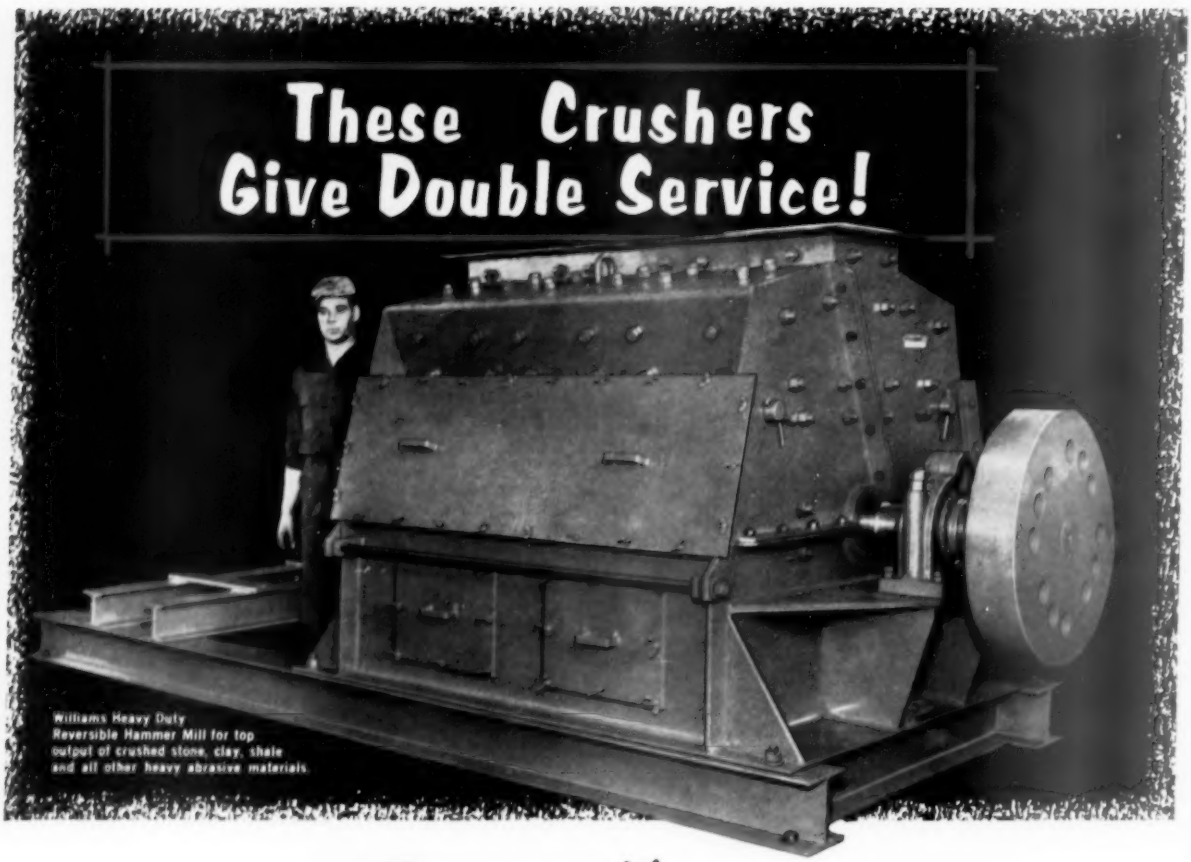
Limestone side line booms into full-time job

see page 96

These Crushers Give Double Service!



Williams Heavy Duty Reversible Hammer Mill for top output of crushed stone, clay, shale and all other heavy abrasive materials.

WILLIAMS *Reversible* HAMMER MILLS

Double service from hammers, breaker plates and grate bars—maintenance reduced to half or less—downtime cut as much as 50%—these are only a few of the money-making, time-saving features of Williams Reversible Hammer Mills.

Operation either clockwise or counter-clockwise with a reversible motor promises that hammers and other internal parts will work twice as long without even opening the machine. Slower and more even wear results in continuous peak output of a uniformly high quality product while, at the same time, demanding the very minimum of time and expense in the replacement of worn parts.

Reversible manganese breaker plates also give twice the usual length of service, and are adjustable to compensate for hammer wear to maintain original close settings.

For the most in real operating economy, high production and top quality products, get the facts about Williams Reversible Hammer Mills. *Write For Catalog.*

Open view of Reversible Hammer Mill. Note heavy shock-proof, wear-resistant manganese steel liners and breaker plates, and the rugged, reinforced construction. Entire interior easily, quickly accessible. Rotor removable without disturbing feeder or feed chute.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
800 St. Louis Ave. St. Louis 6, Mo.

WILLIAMS

CRUSHERS GRINDERS SHREDDERS

Impactors Helix-Seal Mills Roller Mills Air Separators Vibrating Screens Feeders

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WHO BUT LINK-BELT offers such a complete belt conveyor service? For any requirement—new installation or modernization job—Link-Belt will plan it, equip it, erect it and stand behind it. Our engineers can choose from industry's most comprehensive idler line—plus a broad range of pulleys, drives, terminal machinery and auxiliary equipment. Because all drawings and equipment come from one source, responsibility is centralized . . . no need to waste valuable engineering man-hours coordinating drawings from several sources.

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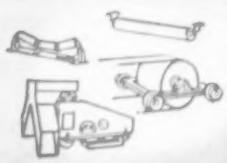

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Add to the basic economies of belt conveyors the extra advantages offered by Link-Belt—it's a formula producing lower costs per ton for all industry. Your nearby Link-Belt office can furnish complete information. LB 921

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BELT CONVEYOR EQUIPMENT

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville (Sydney), N.S.W.; South Africa, Springs.

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NOVEMBER 1957

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B.F.Goodrich report:

7,000-ton rain of rocks

B. F. Goodrich improvements in rubber brought extra savings

Problem: Bang! And tons of sharp rock will thunder from that freight car, crash down into a metal chute. OK for the rock, but hard on steel. With 7,000 tons needed every day to build a powerhouse, there's no time to wait while steel chutes are repaired.

What was done: To avoid costly delays, a B.F.Goodrich distributor suggested lining the metal chute with a rubber, called Armorite, specially compounded to stand this sort of a beating. This rubber is soft enough to *give* under the beating it gets, yet so tough that it's even used in some places to carry broken glass.

Savings: This B.F.Goodrich rubber lining had stood up under a daily avalanche of rocks for four months when the picture was taken, is expected to last another year. No repairs, no delays of any kind.

Extra benefits: B.F.Goodrich Armorite is also being used in dozens of other places, here on the St. Lawrence Seaway job. It has given a wire screen sifter five times longer life by protecting it from falling rock. As a belt scraper, it lasts ten times longer than steel. It is also used as a rubber skirting in a chute, absorbing the wear and tear of rocks being dropped on a belt.

Where to buy: Your B.F.Goodrich distributor has the exact specifications of the Armorite described here. And, as a factory-trained specialist in rubber products, he *can* answer your questions about *all* the rubber products B.F.Goodrich makes for industry. *B.F.Goodrich Industrial Products Co., Dept. M-214, Akron 18, Ohio.*

B.F.Goodrich

INDUSTRIAL PRODUCTS

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Now . . . a New High in Dust Filter Efficiency . . .

New SLY "ROLL-CLEAN" Dynaclone

Patent No. 2583039
Patent No. 2693681
Other Patents Pending

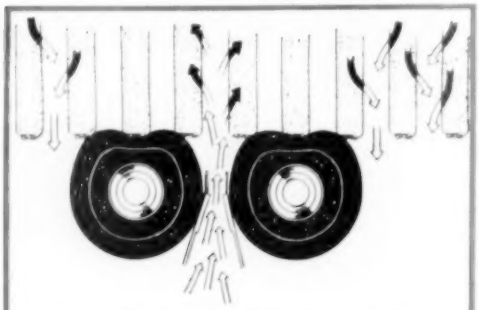
THESE NEW FIELD-PROVEN FEATURES

- Easier filter bag changing.
- Greater cloth area.
- Fewer operating parts.
- Free-rolling cleaner — no sliding.
- Complete dust seal — automatic seal adjustment.
- Easy access to all dust filter parts for inspection and servicing.

PLUS THESE TIME-TESTED DYNACLONE ADVANTAGES

- Constant suction at dust sources — complete dust collection.
- Self-cleaning for continuous operation.
- No auxiliary motors or blowers required for filter-bag cleaning.
- Greater filtering capacity and smaller space requirements — more cloth per cubic foot of filter than any other make.
- Lower power requirements.

The original self-cleaning dust filter, the Dynaclone has proven itself the most efficient dust filter ever made. The "Roll-Clean" Dynaclone combines design simplicity and rugged construction to insure even greater operating efficiency . . . even longer trouble-free service.



NEW "ROLLER CLEANER" provides greatly simplified method of cleaning dust from filter bags. Resilient rubber rolls automatically adjust to form a positive dust seal as each row of bags is cleaned by atmospheric air.

NEW CATALOG

. . . gives full details on "Roll-Clean" Dynaclone and other Sly Dust Filters . . . contains valuable engineering information. Write for your copy.

See it in Space 73, the Chemical Show, New York Coliseum, Dec. 2-6.

SINCE 1874 SLY

THE W. W. SLY MANUFACTURING CO.

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OFFICES IN PRINCIPAL CITIES

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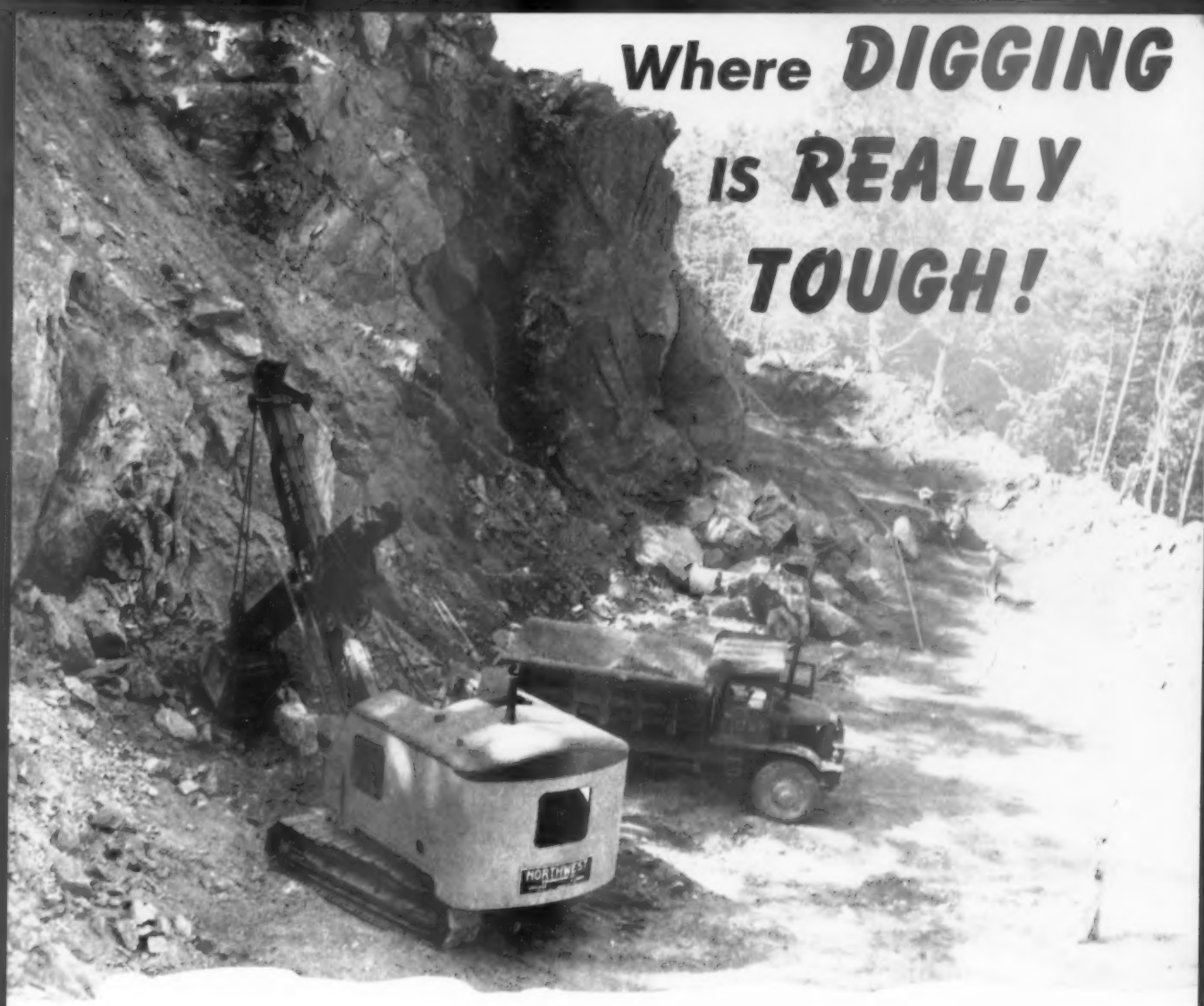

Where DIGGING IS REALLY TOUGH!

This big Model 6 Northwest is in as tough digging as you'll ever find. This is Kyanite, an aluminum silicate used in ceramics to offset the shrinking of clays.

Kyanite is HARD—often reaching a hardness of 7.

The mine is that of Kyanite Mining Corp. of Cullen, Virginia, and this is one of four Northwests that they use on their operations. This is the third repeat order which is incontrovertible proof of how Northwests perform in this hard digging.

Northwests have the stamina for mining operations like this. The Northwest Dual Independent Crowd utilizes force most other independent crowds waste, giving that extra push for hard rock work. The "Feather-Touch" Clutch Control makes operation easy without pumps, compressors, valves, or tubing. The Cushion Clutch eliminates overloads before they can damage operating machinery. Cast steel bases and machinery side frames take the shocks of rock digging. Uniform Pressure Swing Clutches eliminate the jerks and grabs that make spotting heavy loads difficult. These and many other Northwest advantages combine to make the Northwest a *real* Rock Shovel.

If you have a pit problem or are modernizing, get complete details on Northwest equipment. Ask to see a Northwest Man.

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THE GREATEST COMBINATION OF PROVED ADVANTAGES EVER BUILT INTO A SHOVEL, CRANE, DRAGLINE OR PULLSHOVEL

NORTHWEST

Convertible for any Mining Material Handling or Excavation Problem

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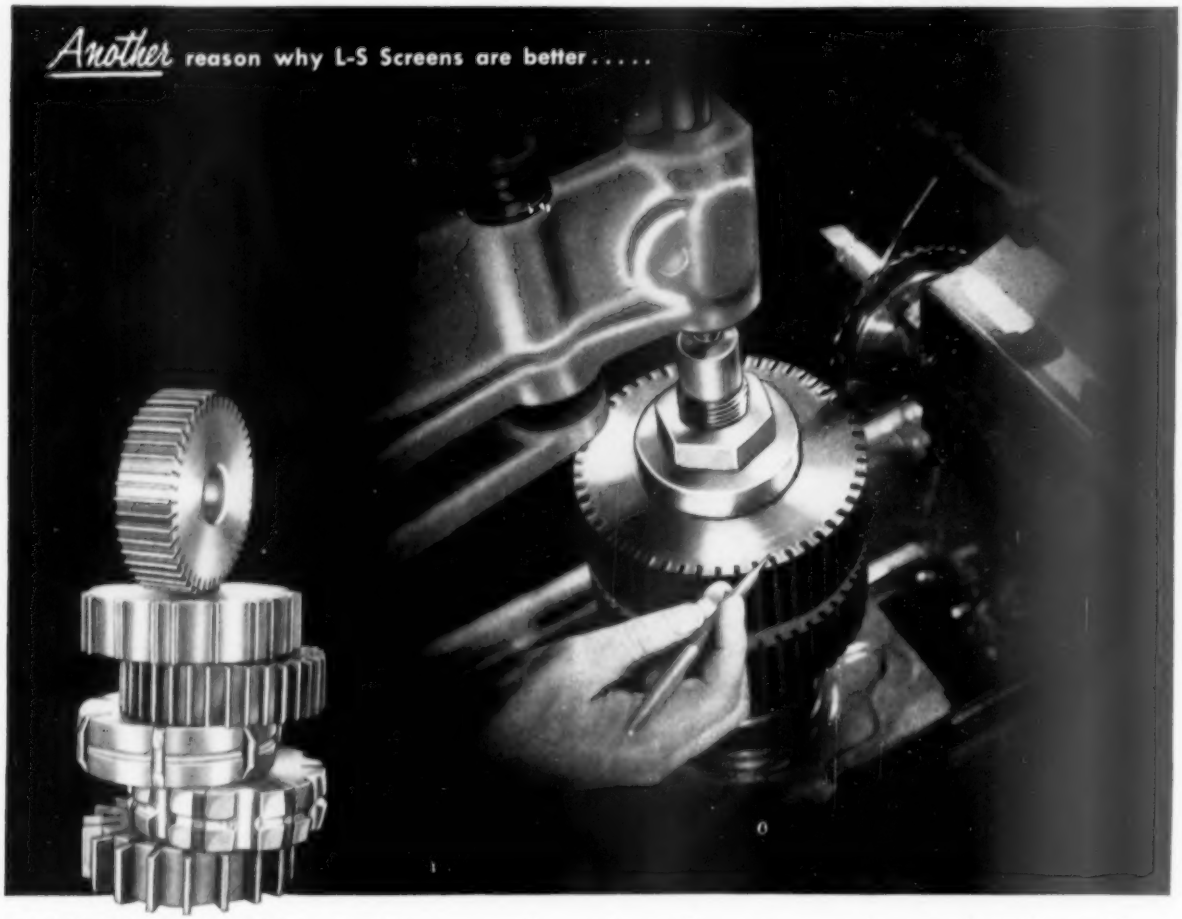
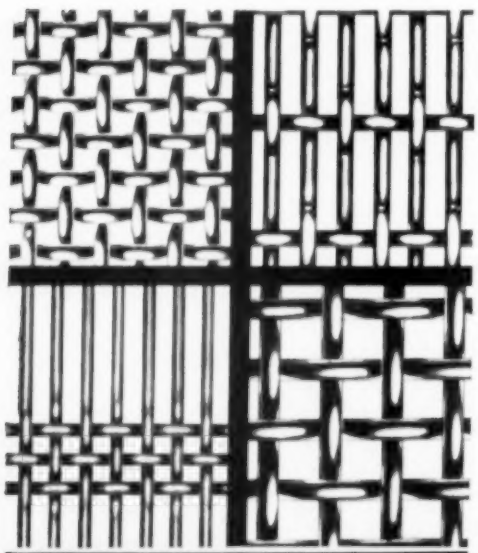


LUDLOW-SAYLOR designs and makes its own wire crimping dies to insure precision weaving and dimensional stability



Ludlow-Saylor Screens and Wire Cloth can be furnished of stainless, oil-tempered, high-carbon, monel, bronze, copper, brass, or any other wire.

No guesswork here! It takes practical engineering knowledge of all the physical and chemical characteristics of many kinds of wire, production know-how and skillful tool-making ability, plus critical supervision to design and produce L-S wire crimping dies.

The care in crimping die production is typical of every phase of Ludlow-Saylor manufacture that makes L-S Super-Loy Screens tougher and stronger, more rigid and accurate. They wear longer, stand up better under every operating condition —yet cost no more than ordinary screens.

Specify L-S Screens to get a higher quality, more uniform, lower-cost product.

***Immediate Shipment* of most weaves and sizes**

Write for Condensed Screen Reference Catalog

Ludlow-Saylor

WIRE CLOTH COMPANY

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SALES OFFICES: Birmingham, 1727-6th Ave. N.; Chicago, 5708 W. Diversey; Pittsburgh, Union Trust Bldg.; Houston, 1213 Capitol Ave.; Denver, 1530 Carr St. WEST COAST SUBSIDIARY: Los Angeles, Star Wire Screen and Iron Works, Inc., 2515 San Fernando Road.

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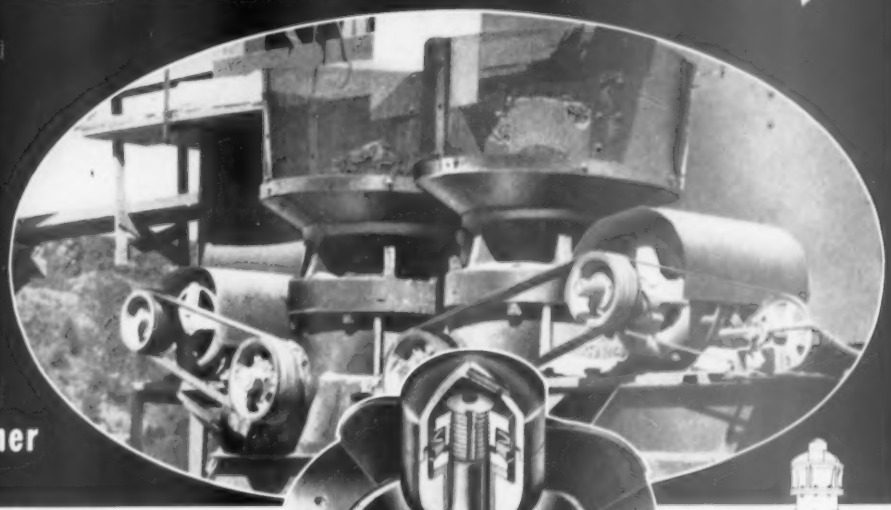
TRAYLOR-MADE

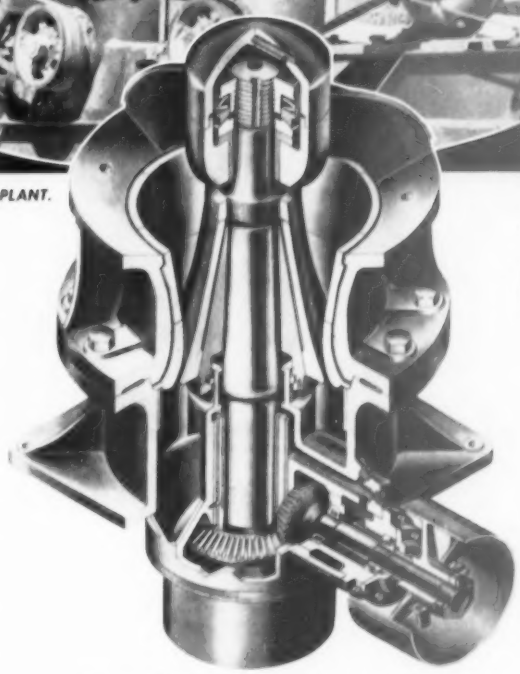
is engineered efficiency ✓



TY
Gyratory Crusher

2—1'-8" TY CRUSHERS IN PORTABLE AGGREGATE CRUSHING PLANT.

Traylor engineering efficiency developed the self-tightening Bell Head and Curved Concaves used in the TY Crusher. This enables operators to secure large tonnages of small product, of uniform size, with low percentages of oversize and waste fines. Traylor TY Reduction crushers are built in six sizes from 1'-3" to 5'-6" and with feed openings from 3" to 22". Write for bulletin No. 8112 today.



TYPE TY CRUSHER (quarter-section cut-away view)

This view shows all the sound structural features that make it the outstanding secondary reduction crusher in its field.

Traylor

TRAYLOR ENGINEERING & MFG. CO. 1904 MILL ST., ALLENTOWN, PA.

Sales Offices: New York — Chicago — San Francisco
Canadian Mfr.: Canadian Vickers, Ltd., Montreal, P. Q.

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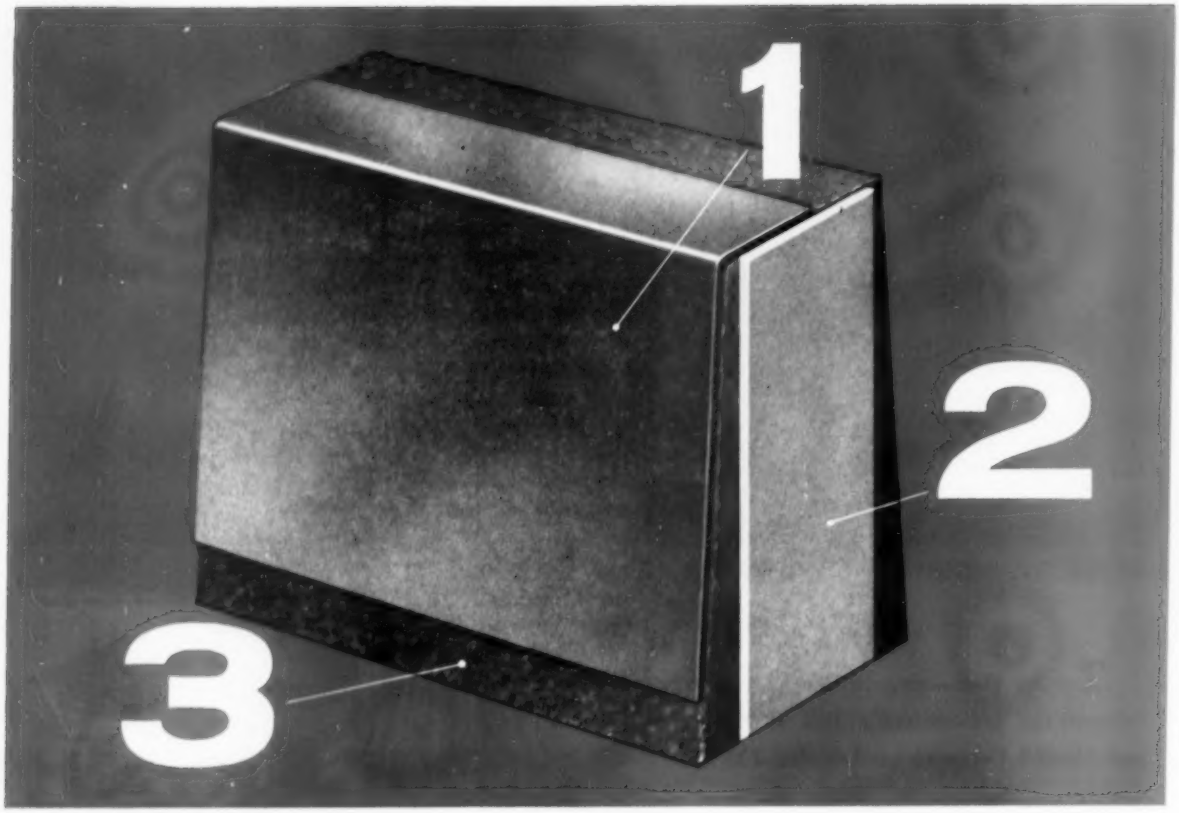
KAISER UNITAB*



THESE KAISER-ENGINEERED FEATURES MAKE UNITAB YOUR BEST KILN LINER INVESTMENT . . .

1 Pre-formed steel shim bonded to liner with special adhesive.

- Bonding assures automatic placement of shim between each brick in ring.
- Thickness of combustible adhesive provides correct allowance for circumferential expansion (within ring).
- Radius formed by shim bend provides "V" opening between liners; this "V" serves as a pilot for wedging shims needed to lock ring.
- Shim overlapping hot face makes visual inspection easy—to see that each brick is correctly installed.
- When kiln is fired hot face overlap melts, oxidizes and combines with the feed to speed build-up of coating.
- Half-inch gap between end of shim and shell acts as heat buffer to conserve fuel.

2 Cardboard spacer attached to one end of liner.

- Combustible spacer automatically provides correct allowance for longitudinal expansion (between rings).
- Factory-bonded accessories, both shims and cardboard spacers, simplify handling for installing crew . . . save up to 50% installation time . . . simplify ordering and inventory.

3 Performance-proved Kaiser Periclase-Chrome basic brick.

- The same brick that has been giving cement producers amazing improvements in hot zone service.
- Unequalled for dimensional accuracy and uniformity.
- Outstanding volume stability under loading.
- Excellent resistance to chemical attack by cement clinker at high temperatures.
- High spall resistance—takes and holds coating even through shutdowns.

*Patent applied for—U.S.A., Canada and Mexico.

*(Kaiser Unitab was formerly known as "Unitized Kiln Liner T3.")

KILN LINER...

Industry's first **kiln liner with bonded shim and spacer... introduces** *savings up to 50%* **on installation time... makes correct brick placement** *automatic* **... provides** *foolproof* **allowances for expansion! Kaiser Unitab liners give you** *all this plus* **superior dimensional uniformity and the unsurpassed hot zone performance of** *Periclase-Chrome* **basic brick...** *pioneered and proved by...*

Call or write Kaiser Chemicals Division, Department C-72x41 Kaiser Aluminum & Chemical Sales, Inc., at any of the regional offices listed below:

PITTSBURGH 22, PA. . . . . . **3 Gateway Center**
HAMMOND, IND. . . . . . **518 Calumet Building**
OAKLAND 12, CALIF. . . . . . **1924 Broadway**

Kaiser Chemicals

Pioneers in Modern Basic Refractories

Refractory Brick and Ramming Materials • Castables and Mortars • Magnesite • Periclase • Deadburned Dolomite

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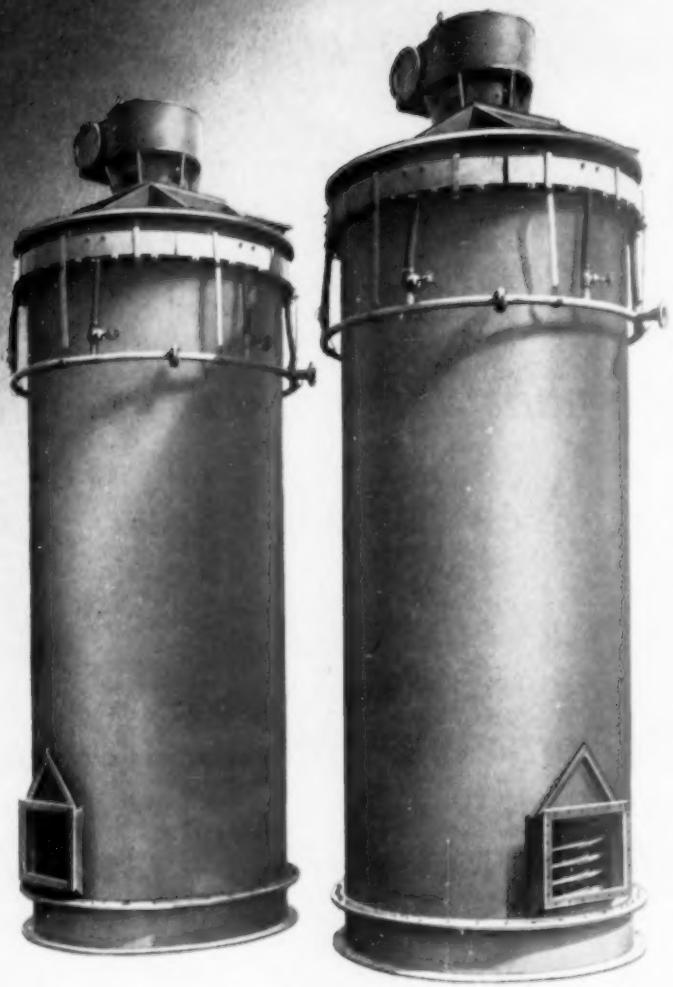
SMIDTH
cement coolers



The Smidth Cement Cooler, developed especially for cooling hot cement to temperatures acceptable for bulk shipment or immediate bagging, is externally water-cooled. The hot cement is introduced at the base and conveyed in a thin layer along the cooled interior surface to the top, where it is discharged. High cooling efficiency is assured by the intimate contact of cement and the water-cooled surface.

The Smidth Cooler may also be used with many other similar dry pulverized materials.

Illustrated here are two 8' dia. x 17' 7" High Smidth Coolers ready for shipment.

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What's Happening

IN OTHER FIELDS OF INTEREST TO THE ROCK PRODUCTS INDUSTRY

November, 1957

Over a million housing starts for 1957 have been predicted by George Cline Smith, vice president of **F. W. Dodge Corp.** His estimate includes private homes and apartment projects. Giving substance to his remarks is the Labor Department's seasonally adjusted annual rate for private housing starts. This was reported at 1,010,000 for August, up from 980,000 of July but behind the 1,136,000 annual rate for August 1956. Applications for proposed new home building under the Federal Housing Administration's mortgage insurance program showed a 21-percent increase over July and hit their highest volume since the spring of 1956. Government officials said the FHA action boosting interest rate ceilings and lowering down payments early in August was "a factor" in the increases, particularly in FHA mortgage applications.

Freight rate increases are widespread throughout the transportation industry. Barge lines associated with Waterways Freight Bureau increased their rates, effective November 1, by four percent. The 16 member companies handle about 95 percent of large line common carrier freight in the nation, according to Wesley A. Rogers, chairman of the Bureau. Truck rates may follow the recent rail freight increases. H. E. Howell, president of The Middle Atlantic Rate Conference, representing 1,500 trucking firms from Virginia to Maine, remarked, "There's no question about it; our rates will be increased to rail level on full truckloads of commodities." He indicated that the increase probably would be close to seven percent.

The four-day work week is a long way off, says Labor Secretary James P. Mitchell. The cause of the shorter week is being mentioned as a point in contract negotiations by the UAW next year. In a speech before the Commerce & Industry Association of New York, Inc., Mr. Mitchell asserted the gross national product must increase by 40 percent to $560 billion by 1965 to provide for the 193,000,000 population expected then. The GNP—total national output of goods and services—hit an annual rate of $434.4 billion in the second quarter and is expected to total about $435 billion for all of 1957.

British scientists have developed a process of weighing red-hot molten slag by using radioactive isotopes. Barium-140 and lanthanum-140, both giving off electrons and gamma rays and both chemically similar to the components of the slag to be measured, were mixed in with the slag mass in known quantity. They spread out through the melt, and when a small sample was drawn off, the total mass was computed by the measurable dilution of the radio-isotope by the slag. To check their process, the researchers had a special run of about 30 tons of slag cooled, crushed and weighed by machine. The isotope process showed an accuracy of plus or minus one percent.

A long-lasting atomic lamp useful as a mine or marine marker, railroad warning signal or civil defense guide is being marketed in Canada. It is claimed that the lamp, which runs on radioactive Krypton-85 gas, will keep its glow for 10 years without maintenance.

The Government will stockpile less aluminum and at lower prices as a result of agreements worked out with three major aluminum producers. The producers—Aluminum Company of America, Kaiser Aluminum and Chemical Corp. and Reynolds Metals Co.—began tendering excess domestic production to the General Services Administration late in 1956 in accordance with terms of "incentive contracts" entered into during the Korean War. Included in Kaiser and Alcoa surpluses was metal imported from Canada. They voluntarily withdrew from their surpluses amounts equal to their Canadian imports when the GSA, alarmed by the large unforeseen purchases, suspended acceptance of aluminum last summer. Of all the aluminum tendered up to March 31, GSA agreed to take all of the 65,000,000 lb. tendered by Reynolds, 210,000,000 of the 250,000,000 offered by Alcoa and 78,000,000 of the 85,000,000 tendered by Kaiser.

Quartz heat lamps, pencil-slim tubes that are sources of flameless heat, are moving from the research laboratory to the production line. After three years, General Electric is switching its output from pilot plant to mass production, and others planning to put the lamps on the market are Westinghouse and Sylvania. Temperatures up to 1,500 deg. F. are produced by the lamps that give off light rays, mostly infra-red rays, in the form of radiant energy. Those being made by GE are $\frac{3}{8}$ in. diam., and can be made in lengths up to about 50 in. Since the quartz of which the bulbs are made can stand terrific temperatures and can transmit high amounts of radiant energy, the bulb can be made so small that it almost touches the incandescent filament inside.

Irrigation ditch linings of burlap and asphalt have been announced by J. F. Schaffhausen whose research concern, Schaffhausen Corp., Irvington, N.Y., assisted the Burlap Council in developing the lining. He described the lining process as sort of a "club sandwich" with two layers of specially treated burlap placed between three layers of a special asphalt material. The lining is already in use experimentally—10 miles of it—and target date for marketing in quantity has been set for late 1958.

A tunnel under the Thames River is using a new technique to stabilize and solidify the gravels in the bottom of the river. According to **Chartered Civil Engineer,** this pretreatment maintains the pressure of compressed air and prevents the collapse of the gravel under the bottom of the river. A special mixture of cement and chemicals is injected into the gravel on each side of the tunnel. This makes dikes of impermeable gravel to contain the compressed air and form a "box" through which the tunnel is driven.

Currently under development for use in the electronics field at Corning Glass Works is a material called "Fotoform" glass. As many as 360,000 holes per square inch can be made in Fotoform, which can be produced in many types varying in electrical, mechanical and optical properties.

Competition is increasing in production of high purity silicon. Merck & Co., Inc. has entered the field, and has created a new division to make and market the product, which at first will be electronic grade polycrystalline and single crystal silicon. Pilot scale production is scheduled to start in early 1958 at the company's Rahway, N.J., plant.

The editors

Enter 1061 on Reader Card

Stripping 20 feet of overburden at a phosphate mine near Mt. Pleasant, Tenn. This TD-24 rolls full blades of topsoil and clay 150 feet — in only 40 seconds. The blade is an International cable 'dozer. Owner of the outfit: Rochelle and Collison, Mt. Pleasant, Tenn.

PLANET POWER STEERING...THE BIG DIFFERENCE...

MAKES THE

TD-24...the rig for stripping

...reports Rochelle & Collison, Mt. Pleasant, Tenn.

Mining contractors, Rochelle and Collison, have compared costs, work-production and profits, and have the answer: the Planet Power steered International TD-24 is tops for tough overburden stripping!

"The TD-24 is the machine for stripping," declares George E. Collison, Jr., for the contracting firm. "Being able to steer under load without stopping one track makes the big difference.

"Planet Power steering plus the fast reverse keeps the TD-24 producing while other machines are loafing.

"For side-cutting (or benching), the TD-24 has no competition. Its rear end doesn't scoot away from the bank—not with the inside track in high range, and the outside in low!"

"Dead-track drag" eliminated

Any king-sized steering-clutch crawler can only give you one-track power on the turns. TD-24 Planet Power steering eliminates power-wasting "dead-track drag." TD-24 full time two-track power means full-load push or pull on the turns, as well as straightaways!

Exclusive TD-24 Hi-Lo shifting permits instant gear-changing on the go—without stopping or even declutching. Fingertip matching of speed to load under full power speeds production!

Find out how these and all the other TD-24 production exclusives can make the big difference in your profit-making capacity. See your International Construction Equipment Distributor for a TD-24 demonstration!

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International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

large capacity ...modern portable

42" x 41' Portable Apron Feeder; 3'9" x 5' Heavy Duty Scalping Screen; 30" x 42" Jaw Crusher, with 36" delivery conveyor; 30" x 54' Portable Conveyor.

CRUSHING and SCREENING PLANT

of **NELLO L. TEER CO.**, Raleigh, N. C.

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42" x 41' Portable Apron Feeder • 3'9" x 5' Heavy Duty Scalping Screen • 30" x 42" Jaw Crusher with 36" delivery conveyor • 30" x 54' Portable Conveyor • 4' x 8' Double Deck Heavy Duty Scalping Screen • 489-S Gyrasphere Crusher • 30" x 111'6" Belt Conveyor • 5' x 12' Triple Deck Vibro-King Screen • 48-FC Gyrasphere Crusher • 24" x 54' Portable Conveyor • Three Steel Bins

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Portable TERTIARY CRUSHER

48-FC Gyrasphere Crusher.

● Owned by Nello L. Teer Co., and operating near Raleigh, N. C., this big capacity, highly mobile Telsmith Portable Crushing and Screening Plant is modern in every detail. It has primary, secondary, and tertiary units. Crushing hard granite, it produces 300 tons hourly of minus 1½" crusher run; or 200 tons hourly of washed material in 3 sizes: minus 1¼" plus ¾", minus ¾" plus ⅜", and minus ⅜"—for ready-mix plants and highway construction. Get Complete Plant Bulletin 266.

P-21

TELSMITH®

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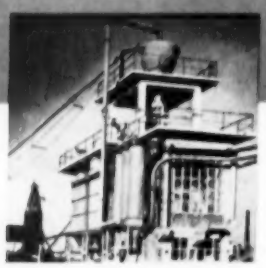

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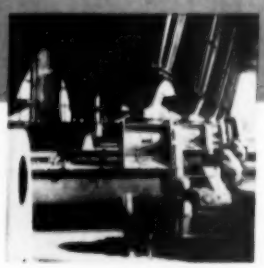
Hartmann has designed, fabricated and installed over 1000 systems for more than 200 different industrial applications. The first, in 1903.



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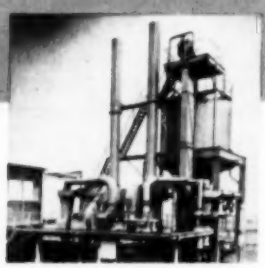

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EDITOR'S PAGE

Your truck taxes are going up—

Unless Congress Changes Its Mind

YOU WHO HAVE A BUSINESS interest in providing materials for the federal Interstate Highway Program are in for a jolt. Cost of that program for the next 15 years will be twice the $27.4 billion originally estimated by Congress, and much of that added cost may have to come from higher taxes on trucks you operate. Your rich Uncle (Sam) is going to give you at least 41,000 miles of Interstate roads, you can be sure of that! But the "inheritance" taxes may be pretty stiff.

That seems to be the revised picture the way Congress and the Bureau of Public Roads now see it, according to a recent analysis by National Sand and Gravel Association's V. P Ahearn.

After its vacation, Congress will have a lot of make-up work to do on the program next January. It will have to decide (1) whether to reimburse states for toll roads included in the program last August, and (2) whether to pay utilities for relocation of their facilities along IHP rights-of-way.

Congress will have to consider certain possibilities for matching revenue with higher program expenditures that are expected. Here are some: (1) Extend time for program completion. (2) Reduce the federal share (90 percent) of the federal-state money-matching ratio. (3) Raise taxes levied under the 1956 Act. (4) Reduce road standards. (5) Divert to the Trust Fund other automotive taxes not now going into it. (6) Make direct federal appropriations to the fund.

Temper of Congress, according to Mr. Ahearn's report, shows enthusiasm for increasing the road program. Also, its members have been persuaded that trucks should be regulated and required to foot a big part of the cost for the Interstate program. It seems likely, then, that burden for a good-sized portion of the increased revenue needed would be placed on trucks by Congress.

Experience so far with the Highway Revenue Act of 1956, it is reported, shows that trucks are not the main beneficiaries of the Interstate System. Yet Congress is inclined to be antitruck and to go along with Senator Byrd's (Va.) insistence on a pay-as-you-go plan.

So—look for a jump in truck taxes, unless you can get Congress to change its mind.

George C. Lindsay

faster loading...

L-W Rear-Dumps position fast . . . usually spot under shovel in one continuous motion, with little "jockeying". Big, wide top opening gives shovel operator easy "target". Low rear entry speeds dipper swing, reduces spillage.

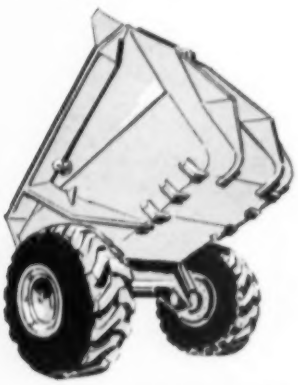
hauls anywhere...

Rough haul roads, uneven terrain, deep mud seldom stop L-W Rear-Dumps. Wide, low-pressure tires, exclusive power-transfer differential, good low weight distribution, electric steer, all help provide go-anywhere traction.

dumps cleaner...

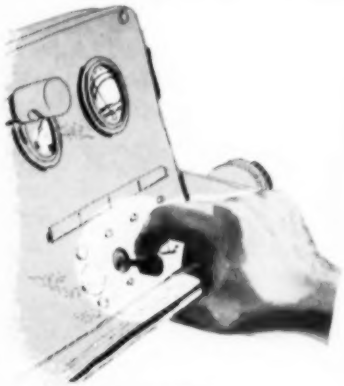
Touch of electric switch raises bowl fast, with edge behind, below rear wheels for over-bank dumping. Tapered bowl sheds all material rapidly. Electric controls permit fast dump or controlled spread. Front-wheel-drive permits easy pull-out.

these Rear-Dump features serve you two ways...



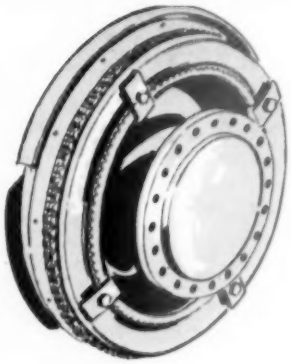
reduces maintenance...

Repair bills are lower, daily lube time shorter, because L-W Rear-Dumps eliminate such troublemakers as hydraulics, springs, long drive shaft, universal joints, tie rods, small steer wheels, frame.



easier operation...

Production stays high all day long because many fatigue factors are reduced. Big tires, foam cushion seat, smooth out ride for operator. Fingertip switches replace hard-to-handle levers.



greater safety...

Multi-disc air brakes provide more brake surface per wheel than most haulers have on all four. Low center of gravity, excellent visibility, front-wheel-drive, and easy control, also boost safety.

easier to own...

L-W Rear-Dumps are competitively priced. Because they last longer, cost less to maintain, and produce more, your savings are substantial. They pay bigger dividends, faster, on your investment.

insures future earnings...

Behind same Tournapull prime-mover you can interchange scraper, crane, bottom-dump, and other trail units. With them, you can keep these units profitably busy on any type of future operation.

job-proven...

L-W Rear-Dumps are at work wherever shovel material is being hauled by modern methods and modern equipment. Hundreds have been in world-wide use for years in mines, quarries, collieries.

Every one of the big advantages of LeTourneau-Westinghouse Tournapull® Rear-Dumps has the same double-barreled purpose: *to build up your production and cut your costs.* These heavy-duty units have been designed and built to answer your requirements for a big, fast, powerful, rugged, dirt, rock and ore hauler . . . one with custom features at standard prices.

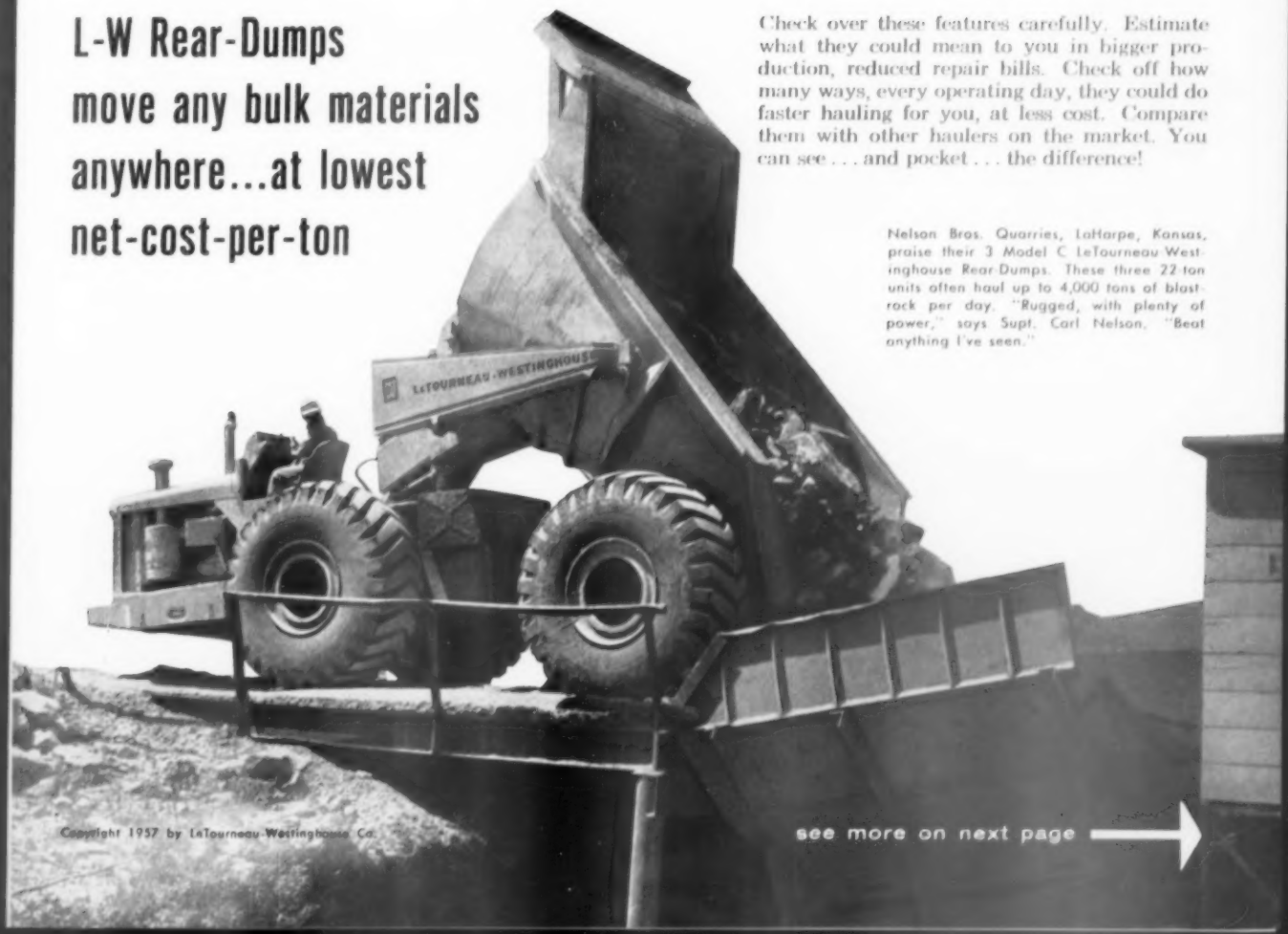
Take one look at a L-W Rear-Dump and you'll see it's radically different from ordinary haul units. It's *not* just a beefed-up, souped-up version of a big highway truck. Much simpler in design — and much more rugged — the L-W Rear-Dump is *a specialized machine designed for tough usage, rough haul surfaces, and big-shovel loading.*

The unusual "frameless" construction of the L-W Rear-Dump is only one of the features that make it a more profitable tool for you. From its broad, deep-lugged tires to its sturdily-built top rim, this hauler is packed with mechanical advantages — most of them exclusive with LeTourneau-Westinghouse — that make it the *most practical hauler available today.*

1. bigger production...
2. lower hauling costs

L-W Rear-Dumps move any bulk materials anywhere...at lowest net-cost-per-ton

Check over these features carefully. Estimate what they could mean to you in bigger production, reduced repair bills. Check off how many ways, every operating day, they could do faster hauling for you, at less cost. Compare them with other haulers on the market. You can see . . . and pocket . . . the difference!



Nelson Bros. Quarries, LaHarpe, Kansas, praise their 3 Model C LeTourneau-Westinghouse Rear-Dumps. These three 22-ton units often haul up to 4,000 tons of blast-rock per day. "Rugged, with plenty of power," says Supt. Carl Nelson. "Beat anything I've seen."

Copyright 1957 by LeTourneau-Westinghouse Co.

see more on next page

...these Rear-Dump features cut

ALL STEEL body resists dents, abrasion

Big-chunk rock loads drop safely into an L-W Rear-Dump. Its bowl is made of heavy steel plate, rigidly reinforced with box-beam ribs and is the heaviest and finest on the market today. Tool-steel strips are welded to the bottom for even greater strength. The bowl floor is small, so the first dipperful acts as a cushion for the rest of the load. Side surfaces are slanted, to take blows at an angle, over a larger surface.

The Tournapull® prime-mover is built for strength, too. To eliminate strain and stress on the power train, its main case is rugged, rigid . . . built of steel plates ranging up to 1½" thick. It has no projecting parts to be damaged by falling rocks.

BIG TIRES smooth out shocks, vibration

Four big tires act as huge shock absorbers for the L-W Rear-Dump. These wide, flexible, low-pressure tires dissipate the vibrations and stress of high-speed hauls. Their "springy" action absorbs the shock of a heavy load dropping into the bowl.

These giant tires flex and roll easily over rocks that might bruise or break smaller duals. They have no divided face where wedged-in rock fragments can wear and tear. These big singles even clean themselves in flexing. Their thicker carcass, larger volume of air, and longer rolling arc make them more flexible, cooler running, longer lasting. Some mine and quarry owners report up to 7,000 hours of wear without recapping.

ELECTRIC controls: weatherproof, wearproof

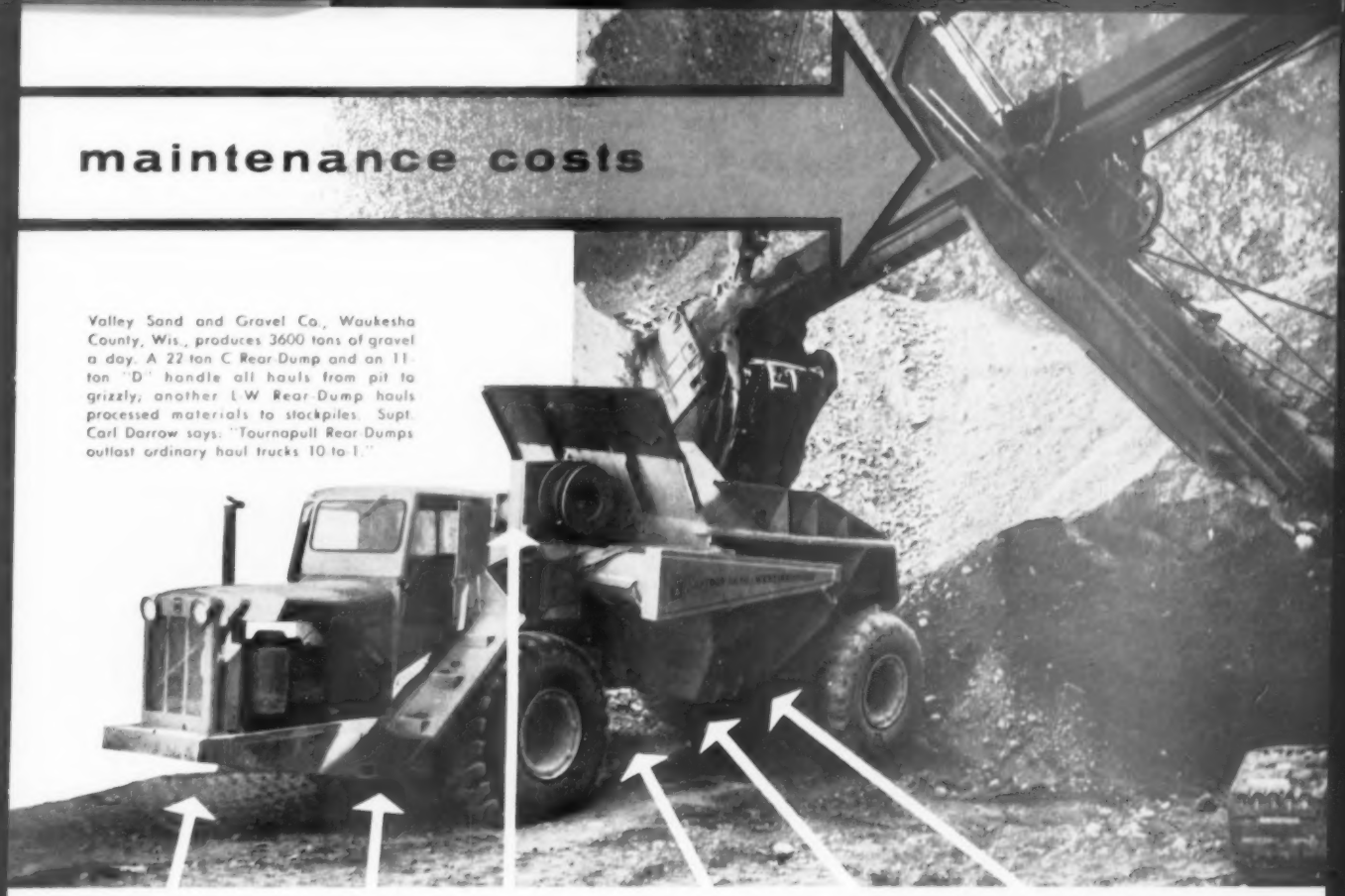
L-W Rear-Dump bowl action and steer are controlled by fast, powerful, dependable electric controls. A fingertip switch actuates the system . . . starts current flowing from a simple, trouble-free generator through heavy-duty, flexible, insulated wire to a high-torque motor at point of action. "Squirrel-cage" motors are basic, simple, have only 2 parts . . . rotor and stator . . . are weatherproof, waterproof, dustproof.

L-W's electric system has few parts . . . and many are interchangeable. It reduces power-transmission lines to a minimum, needs only the shortest of control cables. No special skills are required for repair — one simple instrument pinpoints where any trouble may be. The whole system is as easy to service as the dozens of electrical appliances you've been taking care of around your home or office for years.

Unlike hydraulic or mechanically-geared power systems, the L-W electric control always operates at full efficiency. If something *has* gone wrong, you don't limp along at production-reducing "half strength", or risk the danger of being without sufficient power in an emergency. Instead, you know *immediately* that service is needed. You know at once where to look for your trouble. You can make repairs in a hurry and get back to top production fast!

maintenance costs

Valley Sand and Gravel Co., Waukesha County, Wis., produces 3600 tons of gravel a day. A 22 ton C Rear-Dump and an 11-ton "D" handle all hauls from pit to grizzly; another L-W Rear-Dump hauls processed materials to stockpiles. Supt. Carl Darrow says: "Tournapull Rear-Dumps outlast ordinary haul trucks 10 to 1."



no front "steer wheels" to misalign | no tie-rods to bend | no hydraulics to leak or break | no springs to replace | no frame to warp | no long drive-shaft to service

Frameless construction eliminates "troublemaker" parts

L-W Rear-Dumps are radically different — and much simpler — than conventional haulers. Bowl and prime-mover are hitched through a horizontal yoke extending back from the king pin, and pivoted to the body itself just above and ahead of the rear wheels. This construction is simpler, stronger — has no frame, or sub-frame to get out of line.

There are no springs, hangers, tie-rods; L-W Rear-Dump's big tires adequately absorb the shocks of rough haul-road travel and high-speed loading. Front-wheel-drive and kingpin steer further simplify maintenance . . . eliminate small front wheels, long drive-shaft, hinged steering connections . . . that are subject to misalignment and need frequent lubrication.

With electric motor-driven winch for dump action you eliminate all the headaches of hydraulic systems. There are no troublesome oil seals and pumps, no freezing up in cold weather, no revving up to build up power to dump, no leaks or breaks. Both up and down motions of bowl are powered, so you avoid the shocks of gravity dumping.

Built-in safety features protect your investment

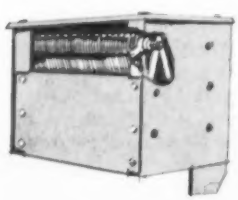
Sure-stop brakes

Each wheel of the Tournapull Rear-Dump has more braking surface than all four wheels of any comparable hauler. Instead of narrow brake shoes and drums, this brake design uses multiple discs splined alternately to wheels and axles. Foot-pedal-controlled air pressure forces discs together, to bring loaded units to a safe, sure, smooth stop.

Deep-bucket seat

Operator sits high, can see what he's doing, where he's going. He relaxes on a thick, comfortable, form-cushion seat that absorbs much of the vibration and shock of operation. Seat helps keep him efficient all shift long . . . reduces the fatigue that can mean slow response in tight spots.

Electrotarder



Tournapull's electric system also furnishes braking horsepower through Electrotarder . . . standard on the B Rear-Dump and optional on other models. This auxiliary braking unit sets up an electrical resistance on the generator, creates a drag on the engine strong enough to cut your speed down to a "walk" on long, downhill hauls *without use of service brakes*. Electrotarder has no moving parts to wear out . . . prolongs life of service brakes. Torque-converter "B" offers same feature in hydraulic retarder.

Power steering

Operator has complete control of L-W Rear-Dump at all times with electric-motor kingpin steer. Just a flick of a dashboard switch (or slight turn of steering wheel on Model B) turns the unit right or left up to a full 90°. Steering action stops the instant switch or wheel is released, then brake locks steer motor. This effortless, quick-response steering is another big L-W Rear-Dump safety feature.

see more on next page

here's how these feature-packed haulers

Fast loading

One of the reasons L-W Rear-Dumps haul more payloads per shift is that they can be *loaded* in a hurry. Maneuverable wagon-type steer lets units back in close to the shovel, usually in one pass. They eliminate time-wasting jockeying, because they can turn a full 90°, make continuous U-turns in less than their own length — in 25% *less* than their length with bowl up! In narrow pits, restricted benches, mine tunnels, they maneuver fast, sure, quick . . . need no special turn-arounds or troublesome skid-plates.

Unit's big, wide, unobstructed top makes an easy target for your shovel operators. And low, wide, rear entry of this hauler lets the dipper swing in smoothly, quickly . . . in one continuous arc . . . rather than the up-over-in, up-over-out motions needed with high-top trucks. Bowl's top rim is sturdily built to permit lip loading of big rock.

HAUL anywhere

You'll find your L-W Rear-Dumps haul steadily, at fastest practical speeds — whether their routes are smooth, clean, and well-maintained, or rough, rutted, and slippery. Big, deep-lugged tires give excellent traction and flotation. Loaded rigs have 45 to 50% of total weight on drive-wheels for better pull-power. And there's plenty of usable engine power available through a wide selection of gear ranges. In addition, 22-ton "C" and 35-ton "B" are available with torque converter and power-shift transmission, for automatic matching of torque and power to load.

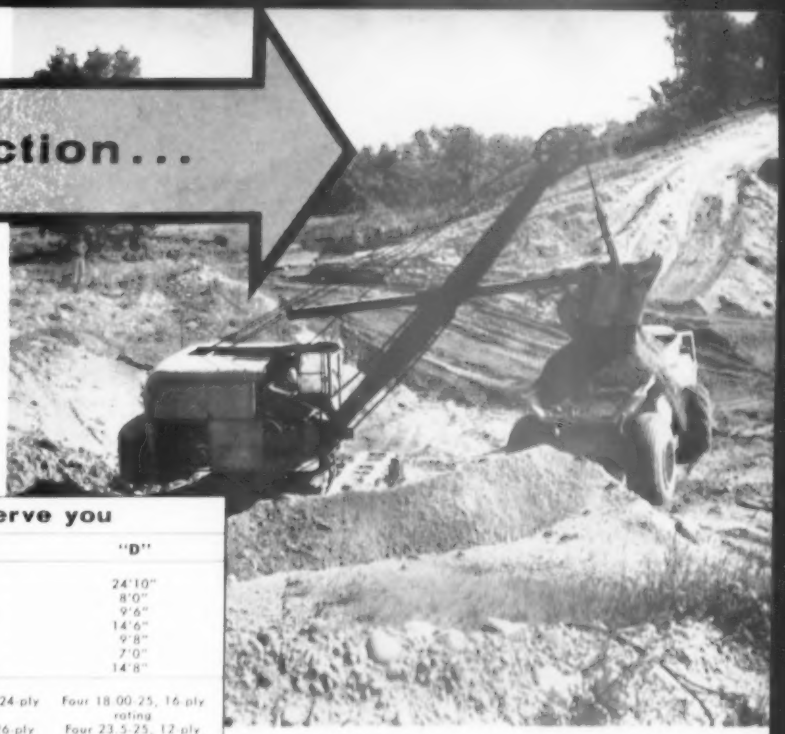
In soft, slippery areas, these "go-anywhere" haulers offer three big operating advantages: (1) Exclusive power-transfer differential, which automatically transfers power from a slipping drive-wheel to the wheel on better footing. (2) 90° kingpin steer, with which you can often "duck-walk" out of trouble. Operator just turns prime-mover left, right, left, etc. . . . swinging drive wheels ahead from side to side until they "walk" out and reach solid footing. (3) Independent front and rear-wheel braking and frameless construction, which let you "hump" forward off soft footing when bowl is empty. Raising dump-body shortens wheel-base. Therefore, by first *raising* bowl with front brakes locked and rear brakes released . . . then *lowering* bowl with rear brakes held and front released . . . Tournapull® "humps" forward in good-sized strides, without use of drive wheels.

DUMP quicker

Just as it does in spotting for loading, your L-W Rear-Dump gets into dumping position *fast*. A touch of a fingertip switch dumps the load quickly, cleanly. The smooth, rounded interior and high lift of the bowl lets every particle of material slide out. There's no carry-back to steal power and reduce capacity.

Exceptional, too, is the accurate load *placement* possible with L-W Rear-Dumps. With front-wheel-drive, independent braking and sure-footed tires, operator can get up closer to dump area. Bowl-lip swings deep behind rear wheels, so he needn't worry about roll-back . . . material is cast out and away. If you wish, dump on the level can be made on-the-run, for fast spread. Electric power-up and power-down control of bowl position makes it easy to spread most materials evenly.

boost your production...



This is the shortest route from pit to plant at Nashville Gravel Co., Nashville, Mich. Road to the left is the "long way around". Nashville's LeTourneau-Westinghouse D Rear-Dump has no difficulty with the shortcut . . . climbs its steep grades easily, quickly. Competitive units at the quarry had trouble . . . actually couldn't negotiate the hill at all until "D" had pioneered and compacted it by frequent trips. Owner F. G. Cheney says: "We like our L-W Rear-Dump because it delivers more material."

11, 22, and 35-ton sizes to serve you

Model	"B"	"C"	"D"
Overall Dimensions			
Length	35'10"	29'6"	24'10"
Width	12'6"	11'3"	8'0"
Height	14'0"	11'4"	9'6"
Wheelbase	20'8"	16'4"	14'6"
Wheelbase (Dump Position)	12'4"	8'1"	9'8"
Average Loading Height	10'6"	8'3"	7'0"
Height (Extreme Dump Position)	20'4"	17'2"	14'8"
Tires			
Std.	Four 27.00-33, 30-ply rating	Four 24.00-25, 24-ply rating	Four 18.00-25, 16-ply rating
Opt.	Four 27.00-33, 36-ply rating	Four 26.5-25, 26-ply rating	Four 23.5-25, 12-ply rating
Gauge			
Tournapull	8'	6'11"	6'3"
Rear-Dump	10'	9'	6'3"
Ground Clearance			
Tournapull	24"	17½"	15½"
Rear-Dump	34"	26"	24"
Turning			
Maximum Angle (left and right)	90°	90°	90°
Width Required for 180° Turn	35'	28'8"	24'8"
Width Required for 180° Turn (Dump Position)	27'	20'8"	18'8"
Brakes (Multiple-disc air brakes on all four wheels)			
Braking Surface (sq. in.)	7,488	3,762	2,800
Weight			
Approx. Shipping Weight (lbs.)	73,700	43,800	22,300
Distribution			
Empty			
Front	66%	68%	70%
Rear	34%	32%	30%
Loaded			
Front	45%	50%	50%
Rear	55%	50%	50%
Engine	300 HP GM, 335 or 300 HP Cummins	210 HP GM, or 200 HP Cummins	138 HP GM
Transmission	Fuller 5F-1220, or Allison Torque Converter	Fuller 5A-1120, or L-W with Tournaschneider Torque Converter	Fuller 5A-650
Differential	Power-transfer	Power-transfer	Power-transfer
Clutch	Rockford 16" double plate	Lipe-Rollway 17" single plate	Rockford 14" single plate
Speed in MPH	Allison Power Shift / Step Gear Low Range / Step Gear High Range	Power Shift / Step Gear	Step Gear
Forward			
1st	4.0 / 3.2 / 4.6	2.3 / 3.1	3.2
2nd	10.0 / 5.8 / 8.3	5.4 / 6.6	6.1
3rd	20.0 / 11.1 / 16.1	12.2 / 11.6	11.9
4th	30.0 / 19.3 / 28.0	28.0 / 20.4	20.7
5th	23.7 / 34.3	32.1	29.5
Reverse			
1st	3.9 / 2.9	5.1 / 4.0	3.2
2nd	5.8 / 4.2	11.8	
Capacity			
Tons	35	22	11
Cubic Yards			
Heaped	27	17	8
Struck	23	14.7	7
Bowl Dimensions			
Length	15'6"	10'10"	10'11"
Width (Inside)	10'2"	8'9"	6'0"
Depth (Max.)	7'0"	6'4"	5'3"
Angle of Dump	58°	66°	52°
Interchangeable Attachments	Scraper Crane	Scraper Bottom-Dump Crane Flat-Bed Hauler	Scraper Crane Flat Bed Hauler Bulldozer Logging Arch Transit-Mixer

Prime-mover does double duty

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ROCKY'S NOTES

NATHAN C. ROCKWOOD

When rock is stone, and stone is rock

EVER SINCE A RECENT lawsuit, in which we had a small, but apparently significant part, there has been a question in our mind as to how many of those engaged in the production of our "rock products" have ever known there is a scientific distinction between the terms "rock" and "stone." We confess that in some 40 years' association with ROCK PRODUCTS and 8 years' previous experience on the editorial staff of the country's leading engineering journal, we never recognized that there was such distinction and have always used the terms more or less synonymously, as they are universally used in engineering literature today.

The lawsuit referred to has not received any publicity so far as we know. Our own knowledge of it comes from having had a part as an expert witness, along with some half dozen others, most of whom were professional geologists. The lawsuit was the result of an interpretation made by the U. S. Treasury Department and the Attorney General's lawyers of the meaning of the original mine and quarry depletion law (passed in 1951). Producers in our industries probably recall that this Act of Congress provided for a five percent depletion allowance on various mineral products mined and quarried for commercial purposes. Several kinds of products were mentioned specifically and "Stone **(including scoria and pumice).**" The emphasis is ours because this inclusion in parentheses in the law was of some significance, in our interpretation of the term "stone," with which the judge apparently concurred.

Gypsum was not specifically mentioned in the law, although limestone, traprock, granite and various other kinds of rock or stone were. The U. S. Government Revenue Bureau contended that since gypsum was not mentioned it was not included in the law, was not "stone," and hence was not entitled to the five percent depletion allowance. The gypsum producers quite logically contended that "rock gypsum" was "stone" within the meaning of the Act, and paid their profit taxes without the depletion allowance under protest, and started suit eventually to recover this part of their tax. The case came to trial in the U. S. District Court in Chicago only a few months ago.

Rock gypsum is stone: The law provided that the terms used in it were to be interpreted as those commonly accepted in ordinary commercial or industrial usage. The case for the claimants therefore hinged on whether "rock gypsum" is stone in the ordinary every-day use of the term in commerce and industry. The invitation to testify led your writer to geologies and dictionaries to find out what if anything was the distinction between the terms "rock" and "stone." According to our understanding any consolidated part of the earth's crust was rock and also stone, according to the particular writer's choice.

The books on geology were of little help. Nowhere did we find a definition of stone as the term was used in these standard textbooks, and we have many of them, although we never studied geology professionally. It soon became apparent however that professional geologists did make a distinction in their own use of the terms. Edwin C. Eckel's "Building Stones and Clays" is a good example. The first part of the book is on "The Origin and Structure of Rocks." Farther along, where commercial uses of various kinds of rock are described, the text changes abruptly and refers to building "stones," field examination of "stone" properties, laboratory testing of "stone," etc.

The distinction in the use of these terms was apparent, although not explained or specifically referred to. Subsequently in the court testimony by professional geologists it was brought out that: The consolidated crust of the earth in place is

Please turn to page 145

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NEW TILT CAB TRUCKS . . . lowest-priced* Tilt Cab line in America! Six new series, up to 60,000-lb. GCW, are typical of the wide choice in Ford's heavy duty line.

**Based on a comparison of manufacturers' suggested retail prices*

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So see your Ford Dealer today and step ahead with America's most modern truck—built modern to cost you less.

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This Link-Belt SS chain has carried over one million tons annually for 16 years

LINK-BELT SS-1146 BUSHED CHAIN on elevator at Whitehall Cement Mfg. Co. measures 20⅝ in. wide. This original chain has been in use since 1941 and, considering the rugged conditions, has needed amazingly few replacements of pins, bushings or links.

Installed on elevators handling cement clinker 24 hours a day

The remarkable performance of Link-Belt SS-1146 bushed chain at Whitehall Cement Mfg. Co., Cementon, Pa., testifies to its exceptional strength and wear resistance . . . emphasizes the economy of choosing the right chain for a specific job. Since 1941, each of three elevators has handled approximately 17 million tons of highly abrasive cement clinker.

Repeated success

This outstanding record of continuous chain service under the toughest conditions is by no means a rare case. Numerous installations report similar results achieved with this long-life wear resistant chain.

Link-Belt SS-1146 bushed chain offers large joint bearing surfaces for greater wear resistance and trouble-free service in heavy-duty conveying and elevating. Sidebars of selected steel are accurately formed and machined for tight press fit of pins and bushings. The latter are made from tough, hardened steel and locked against rotation in sidebars.

For abrasive jobs

These straight steel sidebars with hardened steel pins and bushings provide needed strength to resist heavy continuous loads. Smooth, hardened surfaces resist abrasive action of gritty materials, prevent packing in critical joints.

18 million tons, 26 years later... SS-856 chain still serviceable

Sets record in cement mill elevator service

The more than quarter-century of continuous handling of raw materials at a Pennsylvania cement mill illustrates the long-wearing durability of Link-Belt SS-856 elevator chain. This amazing service record under extremely tough conditions proves that it pays to pick the right chain from Link-Belt's complete line.

Link-Belt SS-856 chain is made of high carbon steel sidebars with nickel alloy pins and bushings. Hardened sidebars give additional strength plus greater resistance to wear and pitch hole distortion. In addition, accurately machined pitch holes assure proper pitch and tight press fit of mating parts —extend chain life. The hard, smooth surfaces of steel joints repel gritty materials . . . resist abrasion.

Link-Belt elevator chains are available with ultimate strengths up to 200,000 lbs.

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Link-Belt SS-102½ bushed chain extends life of stone elevator

Several years ago an eastern stone quarry installed a main bucket elevator to handle 200 tons per hour of minus 2¼-in. mixed stone. Service life of the original two-strand elevator chain was found inadequate. After several shutdowns, it was replaced with Link-Belt SS-102½ chain with K-5 attachments at every third link.

This long-life, wear-resistant chain is now in its fourth year of uninterrupted operation. It has carried over 475,000 tons as compared to 60,000 tons which was normal life for the previous chain.

Recent inspection of the SS-102½ chain reveals that it is good for another long stretch of service. Elimination of shutdowns and replacements more than justified the slight difference in cost between this and the original chain.

STONE ELEVATOR has buckets at every third link. Centers are 65 feet, with elevator inclined 75 degrees from the grade. Chain speed is 280 feet per minute.

HEADQUARTERS for chains, sprockets and other Link-Belt products is your nearby Link-Belt factory branch store or authorized stock-carrying distributor. Refer to the yellow pages of your local telephone directory.

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Washington Letter

Edgar Poe

Roadbuilding "On Schedule" A report by Southern governors at their twenty-third annual conference showed that the stepped-up highway construction program launched last year is "on schedule." Maryland paces all 48 states in the allocation of highway trust funds for both fiscal 1958 and 1959, the chief executives were told. Gov. Frank G. Clement of Tennessee says that with the shortage of engineers in his state, Tennessee has employed numerous consultants, and their work has been "very satisfactory" in locating new highways.

There was general agreement among the governors that they plan to match all Federal funds through the present tax yields rather than levy more taxes. Actually, the chief executives felt that taxes have gone as high as they can without resulting in a drop in yields.

Construction Forecast Commerce Department officials say that indications are that construction activity the first quarter of 1958 looks as promising as the corresponding period in 1957. All indications are that the last quarter of the current year will be a good one for the industry as a whole, but there are some spotty trouble points over the country.

Stockpiling Curtailed Government stockpiling, which has been a tremendous overall item, is being curtailed. One of the reasons for curtailment was the criticism that some congressmen heaped on the program. Some said that in some cases the program was the equivalent of being a subsidy program.

Lead and zinc producers will feel the reduction more than any industries. Less than a dozen materials are being actively bought by the Office of Defense Mobilization.

Public Works Outlay A large public works authorization is expected to come up for consideration in the House during the next session of Congress. The Senate approved a huge bill at the last session, but the House failed to call it up. The House members, elected every two years, are more prone to listen to advocates of economy than senators who come up for election every six years.

Army Engineers have already begun directing the spending of some of the $858 million in funds appropriated by Congress for public works, rivers and harbors. More than $625 million of the sum will be spent under jurisdiction of the Engineers.

The military construction bill provided the Army with $365 million, Navy $265 million and the Air Force $960 million.

Right-to-Work Laws Eighteen states now have right-to-work laws. They are Alabama, Arkansas, Mississippi, Florida, Georgia, South Carolina, North Carolina, Tennessee, Virginia, Indiana, Texas, North Dakota, South Dakota, Arizona, Utah, Nevada, Nebraska and Iowa.

The right-to-work law is expected to be an issue in the 1958 campaigns in California, Kansas and perhaps two or three other states. Louisiana is the only deep South state without a right-to-work law. The state had a law on the books, but Gov. Earl K. Long joined hands with labor and the Louisiana Legislature in 1956 in repealing the measure.

The AT&T And FCC The Department of Justice's anti-trust division is opposing the American Telephone and Telegraph Co.'s efforts to enter the field of private communications. The Federal Communications Commission currently has under advisement the AT&T application.

Two-way radio equipment which many companies in the rock products field use in their businesses is involved. The companies can carry on con-

versations between the central office and the trucks out in the field through two-way equipment. The Justice Department contends that if the FCC granted AT&T authority to enter into private radio communications it would violate a 1956 government antitrust suit against AT&T.

Slum Clearance

The Senate Banking and Currency subcommittee on housing has begun hearings on the slum clearance program to decide whether or not additional legislation is needed to aid cities in removing slums and preventing other areas from becoming blighted sections. A similar House subcommittee will launch hearings on slum clearance in Washington in December.

Congressional committees are seeking to determine how big the slum clearance programs should be and how long they should last, among other things. Under the existing program, both Federal loans and grants to cities are made. The late Sen. Robert A. Taft was one of the sponsors of the 1949 housing act that provided for slum clearance.

Wage, Hour Law

A House Education and Labor subcommittee will conduct hearings on Wage and Hour law provisions in Western states during the autumn under the chairmanship of Rep. James Roosevelt. Hearings are scheduled to begin in Denver and follow in cities of Washington, Oregon, California and Nevada. The Department of Labor favors the extension of the act. The bills would broaden the provisions of the Wage and Hour law. Extensive hearings were conducted earlier this year.

Dixie Attracts Industries

The South has more than its share of domestic problems, but there are some bright spots in Dixie and forecasts are there will be brighter ones on the horizon tomorrow. While many Southerners are feeling their region is the most maligned sector on the face of the earth, the picture for industrial expansion in the Southland is bright. A total of 1,059 "significant" new plants located in the South in 1956. A state-by-state survey indicates that at least 1,200 "significant" new plants will be established in the region during 1957. The figures apparently prove the South is continuing its great progress despite rising competition and other adverse factors.

The 16 governors comprising the Southern Governors Conference from Delaware to Oklahoma have received a report from the politically independent regional development organization, the Southern Association of Science and Industry, which declares that the region will continue to grow industrially at a pace substantially ahead of the national average. However, current trends indicate a spotty uneven growth. Florida is the South's fastest growing state. Texas, Florida, Georgia and Louisiana are currently pacing the industrial growth of the South.

Gov. Leroy Collins said that one of the paramount reasons for the industrial growth in Florida was because numerous industries proposing to expand their plants found that many workers and key personnel were interested in locating in the Florida climate. He said with the five-day work week and possibility of a four-day week in the future, many families want to locate where it is convenient for them to take advantage of year-around recreation facilities.

In 1950 Florida ranked nineteenth with 2,771,000 population after a tremendous growth during the decade. By 1970 it may rank ninth with close to 6,000,000, according to the Bureau of Census.

By 1970 the Census Bureau predicts that the population of California should range somewhere between 18,656,000 and 20,296,000. The population of New York State by that time figures to be anywhere from 18,746,000 to 20,023,000. If the high estimates prevail, California would supplant New York as the foremost state in population. New York first took the lead in 1820. The projections by the Census Bureau places the nation's total population in 1970 at some 200,000,000 people.

Anti-Union Legislation?

Labor leaders are expecting a drive in the next Congress of restrictive legislation including possibly a measure outlawing compulsory union membership. Any drive that might result will grow out of the exposures of corruption in some labor unions by the McClellan Committee.

Because of the problems ahead, the AFL-CIO's Committee on Political Education plans to redouble its efforts seeking election to Congress of senators and representatives who favor labor unions.

The Senate investigating committee, headed by Sen. John L. McClellan of Arkansas, has been criticized by some labor leaders because it has assertedly bypassed management in the inquiries thus far. Senator McClellan says that in due time investigations into management abuses will be probed.

END

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U N I T E D S T A T E S S T E E L

How would you decide?

A roundup of actual day-to-day in-plant problems and how they were handled by management men

When can't you fire an employe for reporting to work drunk?

What Happened:

WHEN JIM BENSON turned up for work Christmas Eve morning, the guard at the gate thought he'd "had a few." When Jim punched in, his foreman was sure of it. There was alcohol on his breath, his eyes were bloodshot, his speech was slurred and he weaved when he walked. All in all, the foreman didn't think Jim was fit for work that day. He didn't make a big production of it — just told Jim to go home. Jim went. When he returned to work on schedule three days later, he was told that he had been fired as of Christmas Eve for reporting to work drunk. Jim insisted his firing was unjustified with these arguments:

1. I hadn't been drinking. I'd taken some medicine for a cold, that's all. And my eyes are always bloodshot because of an accident I had a few years ago.
2. The foreman should have told me right then that he thought I was drunk and that he was going to hand out a penalty. Not three days later, when I don't remember who I met on the way out who could be a witness that I was cold sober.
3. I'm 55, and I've been with the company for 12 years. At my age, getting 'canned' is pretty darned serious, and it shouldn't be done to me without more proof.
   Usually, if they think a man is drunk, they send him to Personnel, so other people can see if he is drunk, not just the foreman alone.

The foreman didn't see it that way at all:

1. The guard at the gate thought Benson was drunk, too. Neither of us was born yesterday. We've had plenty of experience with drunk workers, and we know when a man is drunk and when he isn't.
2. Benson had been warned for drinking before. He'd also had a five-day layoff for reporting out sick when all the time he was lapping it up in a tavern.
   There wasn't any need to spell it out for him this time.
3. The Personnel office was closed that day, so I couldn't send Benson there.

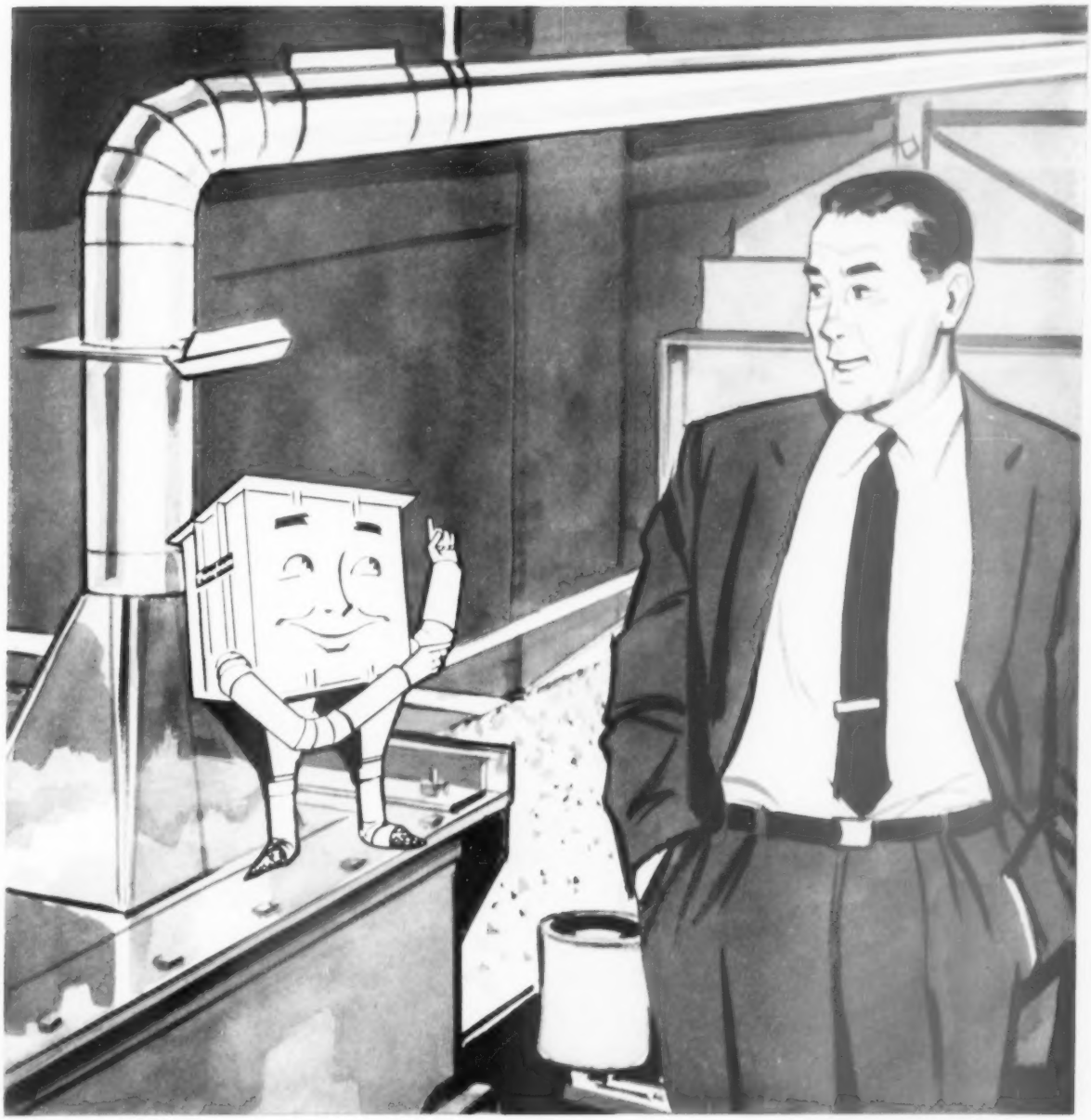
Was the foreman:
Right? ☐ Wrong? ☐

What Arbitrator Carl Warns ruled:

"Mr. Benson should have been told at the time he was sent home that he was indefinitely suspended because of intoxication, or that he was discharged. Union officials in the plant as well as other management personnel should have been notified in order that the degree of proof customarily obtained be available to support the serious charge. Of course, in those cases where an employe is obviously drunk, inarticulate and abusive, a full hearing prior to leaving the plant is not expected. The evidence does not reveal that the grievant was in that condition. Under the necessity for substantiation of the serious charge, Mr. Benson's *prior* layoff, although worthy of consideration, is not sufficient to justify his termination of employment. He shall be reinstated without back pay but with full seniority rights."

(Continued on page 37)

Each incident given in this department is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to *Rock Products*.



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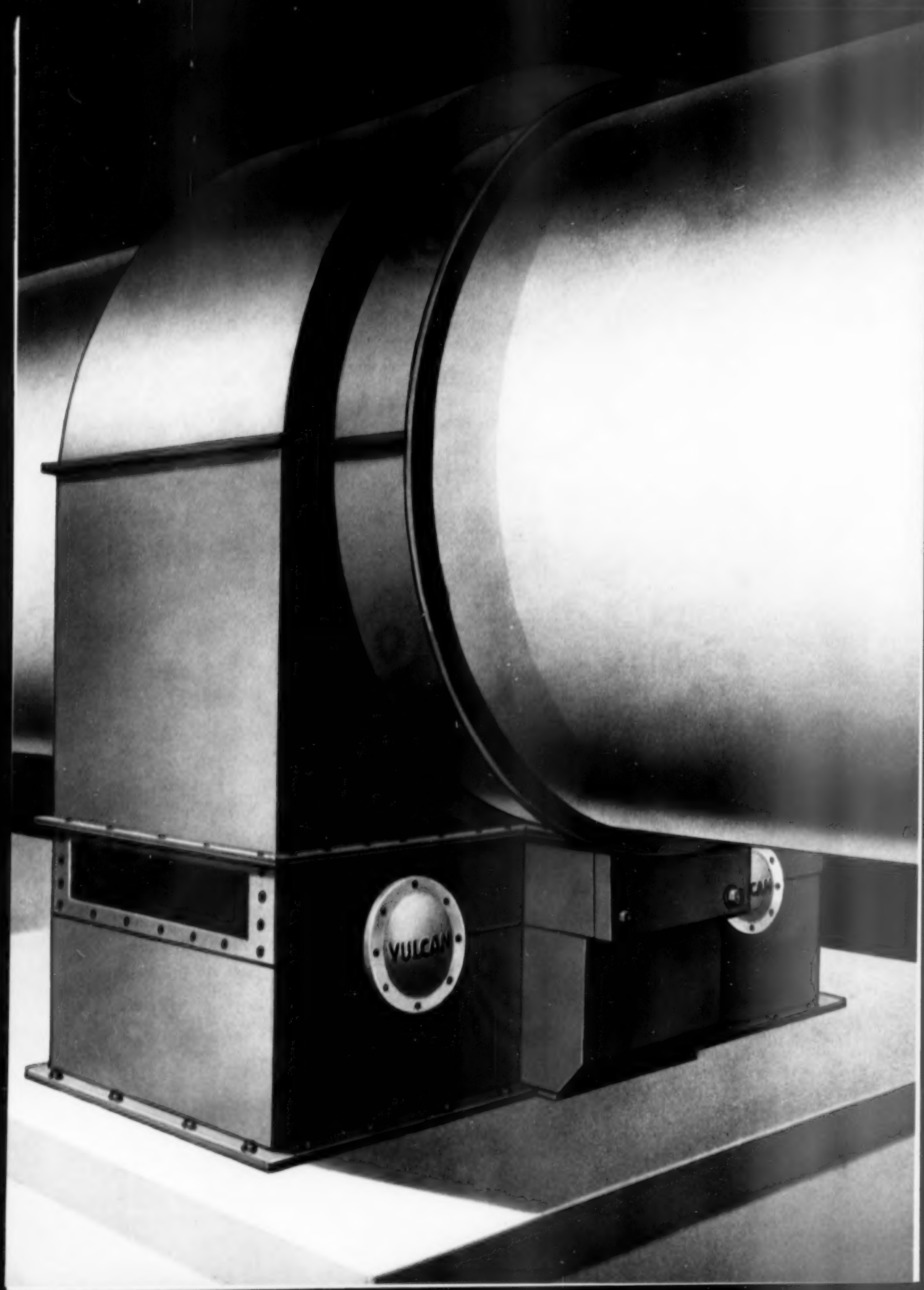
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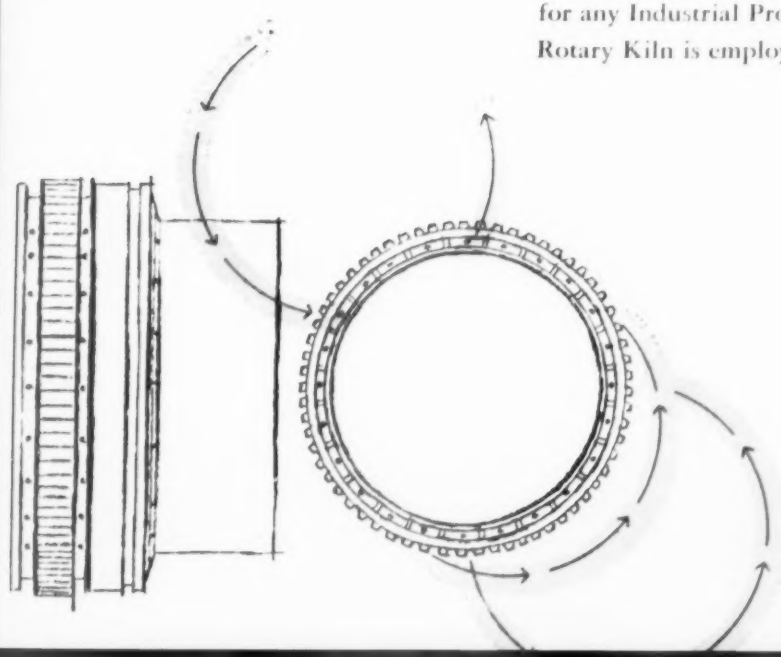

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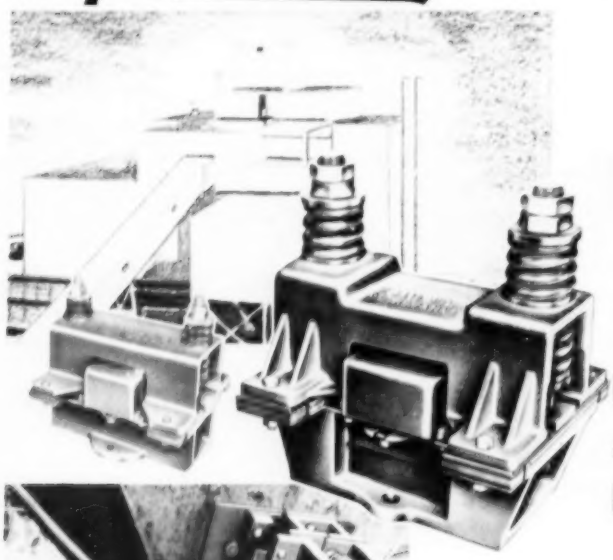

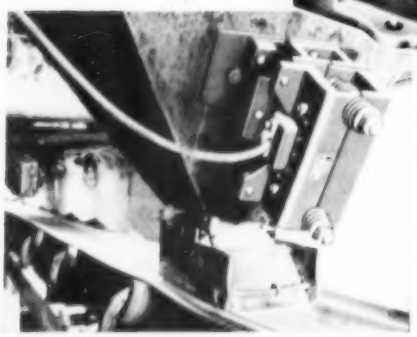

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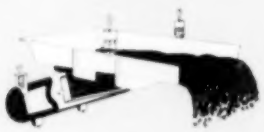

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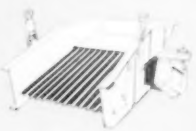

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continued from page 32

Can you fire a worker who leaves early without his foreman's okay?

What Happened:

TOM HARTY WANTED the following afternoon off. Foreman Wiggins said he didn't see how he could be spared as they were short three men. The foreman added that if the job Harty was on was near enough to completion by noon the next day, he'd tell Harty and let him off. The next morning, Leadman Henderson told Harty he'd better get a move on if he wanted to get off at noon. Later, Henderson signaled to Harty to speed up and then knock off. At noon Harty left. He was fired for leaving work without permission. "Not guilty!" said the worker because:

1. By the time I left, it was obvious to anybody that the job would be finished that day. In fact, it was done by 3:30.
2. Several men saw the hand signs the leadman gave me, and they all agree it meant I could knock off. The leadman had the authority to let me leave.
3. I just caught a glimpse of the foreman at a distance that morning. If he'd been close by, I'd have double checked with him. But I didn't want to leave my work to try to track him down.

The foreman replied:

1. Harty shouldn't have left without my specific permission. If he had checked with me at noon, I would have told him, in fact, that I couldn't spare him that afternoon.
2. Whether or not the work was sufficiently completed was a matter of judgment, and I'm the only one who could be a judge of that.
3. Leadman Henderson doesn't remember giving Harty any signals. Even if he did, it was probably horseplay. Anyhow, Harty should have checked with me.

Was the foreman:
Right? ☐ **Wrong?** ☐

What Arbitrator Harold Dworet ruled:

"Harty was told to check with the foreman, which he did not do. He was wrong in his failure to do this. He had no right to be the one to determine whether work was sufficiently completed and when to leave. However, he had some reason to believe the leave was granted to him by the actions of Henderson and the hand signs Henderson made to him. If Henderson had no part in this, there would be no question but that management had cause to discharge Harty. True, Harty might have stretched a point, or might have had sufficient reason to interpret the signs from his leadman. Inasmuch as this is controversial, the arbitrator sees fit to give the employe benefit of doubt. Harty, although mostly to blame, should not be blamed for actions of others which were misleading to him—whether intentional or not. Harty should be reinstated with all rights unimpaired, and compensated for all time lost since his discharge."

●

Must you give a good reason for turning down a bid for promotion?

What Happened:

IN ACCORDANCE WITH the contract, the plant superintendent notified workers that there was a vacancy. Sam Pokro applied for the promotion. He was turned down and somebody hired from outside. Pokro protested:

1. You had no right to turn me down without telling me how you decided whether or not I could do the job.
2. You also should have told me what the outsider had that I haven't got.
3. I've been turning in a good performance for eight years in a closely related job. If you gave my bid any kind of real consideration, you'd at least have given me a trial.

The plant superintendent's reply was:

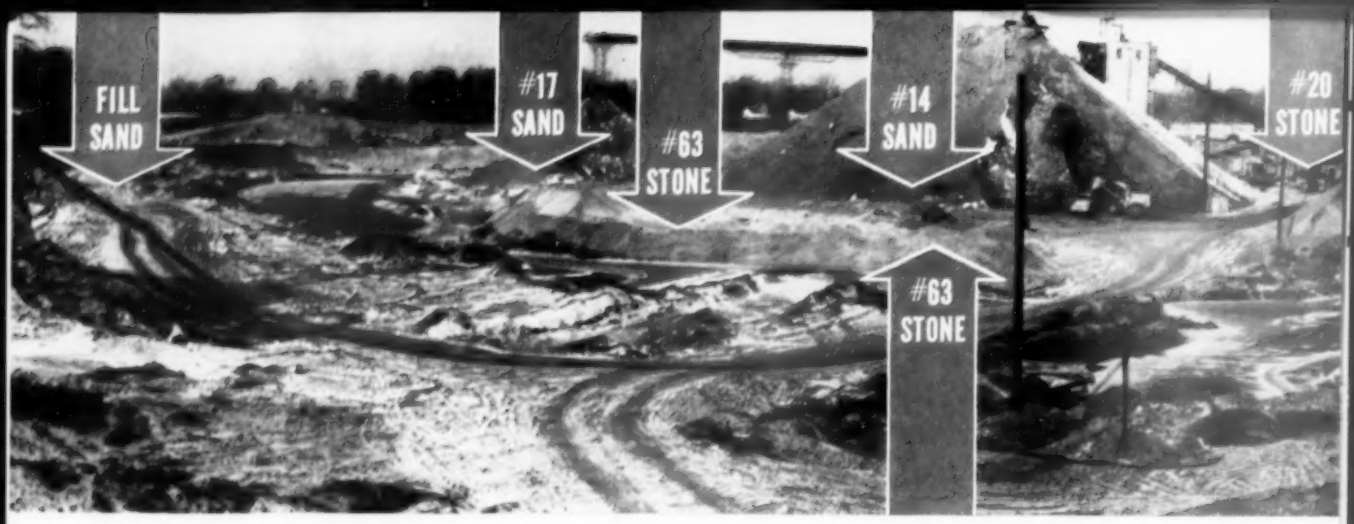
1. The contract doesn't say I have to give any reasons for a turndown. All I have to do is announce there's an opening.
2. You haven't even got a right to question how I fill a vacancy.
3. My decision that you're not qualified is final.

Was the worker:
Right? ☐ **Wrong?** ☐

What Arbitrator Gilden Ruled:

"Unquestionably, the company may not perfunctorily or arbitrarily turn down the application. An objective evaluation of the employe's qualifications for the particular job must be made, and it must be clear that a negative decision is grounded on those findings. Obviously something more is required than just a closed-door session. The posting requirements and bidding pattern unmistakenly reveal that there would be open procedures for fairly and thoroughly appraising and considering the employe's qualifications. It was wrong for the company to fail to specify exactly why the individual did not measure up to the job specifications. Pokro shall be promoted and paid the difference, retroactively, between his present rate and the rate for the higher job."

END



Same hours, same manpower, yet by changing loaders

INDIANA QUARRY QUADRUPLES PRODUCTION

With the same *number* of loaders, and virtually the same number of man-hours, May Sand & Gravel Company, Fort Wayne, has *quadrupled* production (and sales) over the past few years.

Key to their 750,000 ton yearly success story has been the three Michigan Tractor Shovels they brought in to replace a number of less mobile loading units.

Load 550 trucks with 4,500 tons

Accurate records, covering a two year period, show the three Michigans load from 300 to 550 trucks *every nine hour shift*. During peak days their output totals 4,500 tons —a per-unit per-hour average of 175 tons!

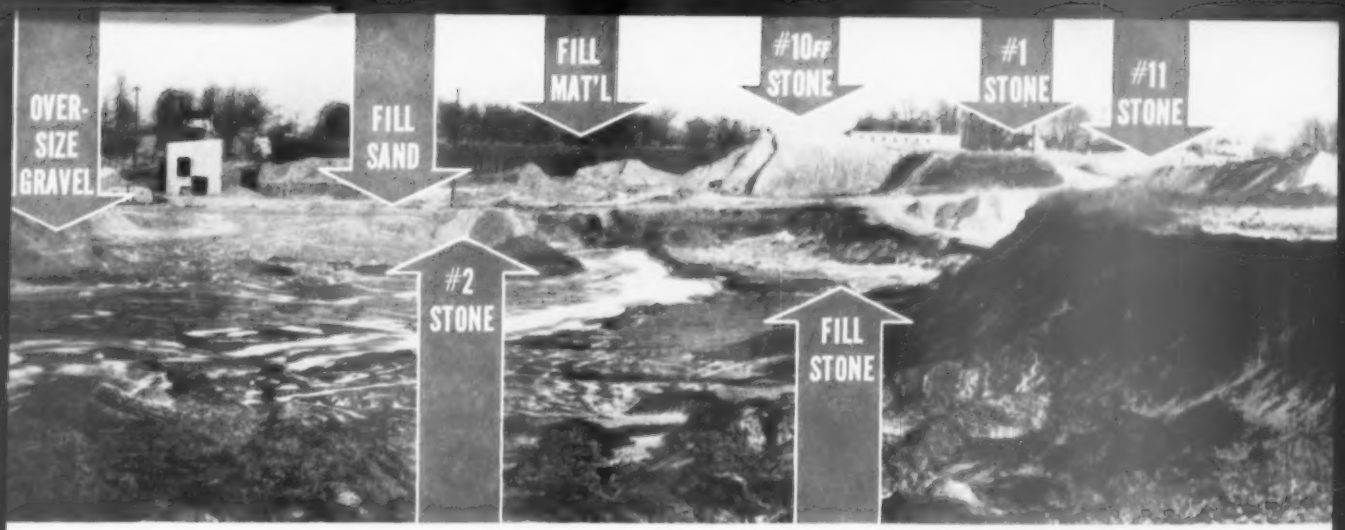
Truckers clear $25 more per day, end gripes

This excellent record has been compiled with only minor changes in methods. Trucks, for example, still are loaded in the order they come into the pit. Formerly, this practice caused frequent delays, often 20 to 40 minutes, while old-style loaders crawled between stockpiles, or labored to load the tougher materials. Now, *even on busiest days*, the Michigans work so fast no trucker waits longer than 2 to 10 minutes from time he drives into the yard until time he's loaded and pulls off the scales. "Trucker gripes have almost disappeared," says Company President Bill May. "The saving of 10 to 30 minutes in pit service often enables each truck to deliver another load or two a day when on long 15 mile hauls . . . an extra two to four loads a day when on shorter one to five mile hauls. That's an extra profit per truck of $5 to $25—or more—every day!"

Fast as trucks between stockpiles

Two major factors combine to produce this time saving. First, the mobile Michigans move from stockpile to stockpile just about as fast as the trucks. Second, the Michigans rapidly load all 10 sizes of stone, two types of gravel, and two grades of sand sold by this plant. Stopwatch measurements, taken from time to time during the past two years, show the 2¾ yard Michigans require only 1½ to 1¾ minutes to heap a 5 yd truck . . . 2¼ to 2½ minutes to load a 9 yarder.

Typical Michigan 2¾ yd load of #14 sand, heaviest of 14 materials handled, weighed out on company scales at 9,000 lbs.



Truck-like speed between stockpiles saves about 1¼ hours per day over crawler-loaders formerly used. Supt. Rooney estimates this time saving, plus lowered repairs, plus faster loading nets his company $70 extra profits per Michigan per shift.

Easy accessibility speeds maintenance

Another important factor in increased plant production has been *dependability*. May Sand and Gravel records show that *not once* in 5½ machine years has a Michigan missed more than a few hours of work. "Sure, we expect our rough service to take its toll," says Jim Rooney, Supt. "But we have a regular program of daily and 100 hour maintenance and inspection that catches what few troubles a Michigan has while they're small. Even when we spot something, even in the rare cases a Michigan breaks down, we always have the machine back to work the next morning! Easy accessibility, skilled workmen, and excellent distributor cooperation make repairs a simple job."

Also do such "extra jobs" as bank loading, pit cleanup

Speed and efficiency help out on extra jobs, too. Three hours every night, and sometimes during the day, one or two of the Michigans clean the quarry floor (this eliminates need for special tractor). Sometimes they load sand fill from bank direct into trucks. At times they level the gravel stockpiles. From 5 to 10 pm some evenings, two of them load non-blasted bank-run sand and gravel. Three trucks are kept busy hauling 2,000 ft to plant for processing. Only light source is own headlights. Average production: 230 tons per hour. And the Michigans have ended worries about rock shovel breakdowns. Supt Rooney reports production loading shot rock with a Michigan of 190 to 200 tons every hour.

Is it any wonder, with all-around performance like this, that May Sand & Gravel Company think Michigan "tops". We think, if you try one, you'll agree. Make your own test. Call or write to arrange a demonstration. You name the job!

Michigan is a registered trade-mark of

CLARK® EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road
Benton Harbor 37, Michigan
In Canada: Canadian Clark, Ltd.
St. Thomas, Ontario

One of Michigan's "spare-time" jobs: hurrying to edge of 30 acre quarry to push off truck-dumped #1 stone.

Excellent service and cooperation from local distributor Deeds Equipment Company is one important reason for May's repeat purchases.

PEOPLE IN THE NEWS

J. A. Valentin retires

JOSEPH A. VALENTIN, vice president of the Michigan Limestone Division of the U. S. Steel Corp., Rogers City, Mich., has retired after 39 years of service. He will be succeeded by L. J. Patterson, formerly manager of the Calcite plant. Donald T. VanZandt replaces Mr. Patterson at Calcite.

Mr. Valentin became associated with the Michigan Limestone and Chemical Co. in 1918 after graduating from Ferris Institute, Big Rapids, Mich. In 1945 he became personnel director and in 1953 was named manager of the northern district, which includes the Calcite plant and the Dolomite plant at Cedarville. Two years later he was appointed manager of sales for the northern district in addition to his duties as manager of the district. He was made vice president of the division in 1956.

A. T. Goldbeck honored

A. T. GOLDBECK, engineering consultant, National Crushed Stone Association, Washington, D. C., has been selected as one of the authors of a new Highway Engineering Handbook. Mr. Goldbeck's contribution will be a chapter on Rigid Pavement Design. Kenneth B. Woods, head of the School of Civil Engineering, Purdue University, Lafayette, Ind., and director of the Joint Highway Research project, is editor-in-chief.

Ideal appointments

JAMES C. ANDREWS, formerly plant manager at the Boettcher, Colo., plant of Ideal Cement Co., Denver, Colo., has been appointed chief production engineer on the production department staff in Denver. He will be succeeded at Boettcher by Donald F. Carlson, plant manager at Trident, Mont. Victor H. Szidon, formerly assistant plant manager at Ada, Okla., has been promoted to plant manager at Trident. Rob Roy Cerney, formerly chemical engineer on the production department staff, has been promoted to assistant plant manager at Boettcher. John Relic, Jr., formerly maintenance supervisor at Gold Hill, Ore., has been promoted to assistant plant manager at Ada, Okla.

Texans work on safety program for the industry

L to R: Ray L. Cain, executive secretary, Texas Aggregates Association; E. C. McFaddin, director, National Safety Council; W. M. Saunders, safety engineer, Gifford-Hill & Co., Inc.; Shelley Burt, vice president-production manager, Servtex Materials Co.; Allan F. Cunningham, F. M. Reeves & Sons, Inc., president of the Association; and Ramsey G. DiLibero, district engineer, Texas Employers Insurance Association

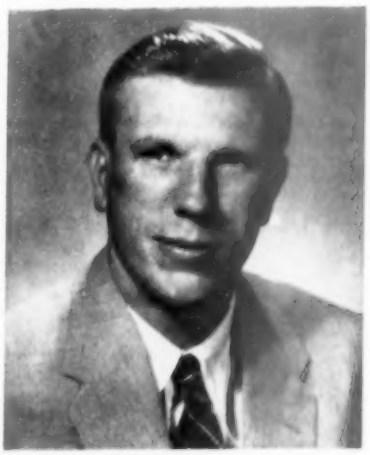
SHELLEY BURT, vice president-production manager, Servtex Materials Co., New Braunfels, Texas; John H. White, president, White's Uvalde Mines, San Antonio; and W. M. Saunders, safety engineer, Gifford-Hill & Co., Inc., Dallas, are members of the safety committee of the Texas Aggregates Association, which has inaugurated a safety program for the industry to help reduce accidents and loss of working time, analyze reports, and ascertain major accident causes and types for the benefit of Association members.

Assisting in the organization of the program are Allan F. Cunningham, F. M. Reeves & Sons, Inc., Odessa, president of the Association; E. C. McFaddin, director, National Safety Council, Dallas; Ramsey G. DiLibero, district engineer, Texas Employers Insurance Association, Austin; and Ray L. Cain, executive secretary of the Association.

Named superintendent

ROBERT E. LINARD has been named superintendent of the Ames limestone plant near Carrollton, Ohio, subsidiary of Hanna Coal Co. He succeeds Ty Laine, who has been appointed manager of the sales department at the plant. Mr. Linard, who has been associated with Hanna Coal Co. for two years, was formerly superintendent at the Georgetown No. 12 mine. He is a graduate of Mt. Union College, Alliance, Ohio.

Assistant plant manager



FREDERICK G. HAIGH has been appointed assistant plant manager of the Bunnell, Fla., plant of Lehigh Portland Cement Co., Allentown, Pa., ac-

(Continued on page 44)

Enter 1035 on Reader Card

Why Wyandotte Chemical Corp. chose this dozer *(a Michigan)*

"Like most quarries, we have a lot of widely-scattered, repetitive jobs to do," writes William Hagen, veteran manager of Wyandotte's big Alpena, Michigan, limestone quarry. "Trouble was, our crawler-dozers just couldn't handle 'em efficiently—moving, as they must over rocky surfaces, at only a couple of miles per hour. And the cost of track maintenance was pretty awful. Major cause of track wear is travel, of course . . . so we tried to limit *both* as much as possible by putting a crawler on each operating level and another on the stockpiles. Didn't help much, though. Breakdowns would still upset our schedules *several days per week*. So we decided to look at some rubber-tire dozers." They tried one type. It was unsatisfactory. Then Wyandotte's local Michigan Distributor, Michigan Machinery & Equipment Co., arranged an on-the-job demonstration.

Makes hour crawler move in 7 minutes

"From the moment our trial Michigan drove off the flatcar, it was *busy*," Hagen continues. "First job on the docket was leveling a dump area on our macadam storage pile. The Model 180 dozed enough area to last an 8-hour shift —in only 28 minutes! Then, because *two* of our crawlers were down for repairs that day, we drove the Michigan a mile to our shovel loading area. *In less than 4 minutes* it was at work, cleaning up ahead of the 6 yard electric shovel and opening the way for trucks. Half an hour later, we moved back to macadam storage —a 3-minute trip this time. One of our crawlers would have taken a whole hour for the 2 mile round trip alone! Later, the Michigan assisted in moving our big quarry shovel; transfer of the power feed cable and area cleanup were handled faster than ever before. We also used the Model 180 Dozer to move drilling machines, air compressors and shanties . . . to strip shallow overburden . . . clean around the surge bin . . . maintain roads . . . and to level the flux stone stockpile. Nowhere in these operations did the Michigan have a bit of trouble. With performance like *this*, we were sold!"

Only 1 repair job in 5,800 hours

Hagen finds their Michigan today does all of these tasks and many more around this 450-acre quarry. The Model 180 actually works 16 hours a day, 7 days per week. Quarry Superintendent B. C. Raymond estimates its tire wear to be *1/6 as costly* as track maintenance on the crawlers. Its mechanical efficiency has been excellent . . . in the past year, it has been down for repairs *only once*. Operators say "Michigan drives like a new car . . . avoids constant jarring of a crawler . . . gets us on the spot *fast* . . . has fine visibility fore and aft. *We like it!*"

Want to move in on bottlenecks too?

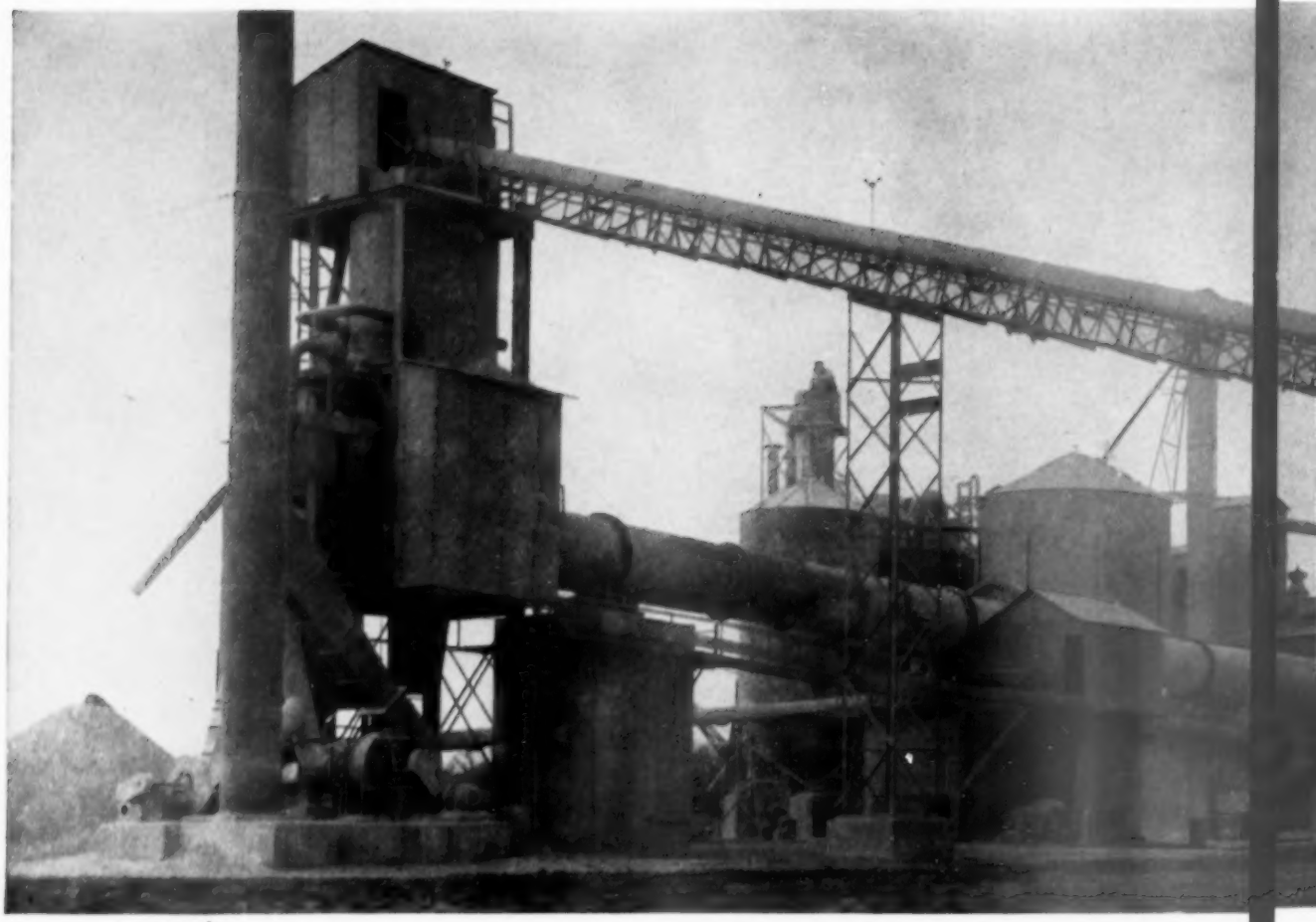
We'll bet a Michigan Dozer can break production bottlenecks for *you*, too. Won't cost you a cent to find out—your local Michigan Distributor will be glad to arrange a thorough demonstration. You pick the time. You pick the job. No obligation, of course. And ask him about the popular Clark Lease-Purchase Plan, which lets you put a Michigan to work without investing a penny of capital. Other finance plans available—choose the one you like best!

Michigan is a registered trademark of

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road,
Benton Harbor 35, Michigan

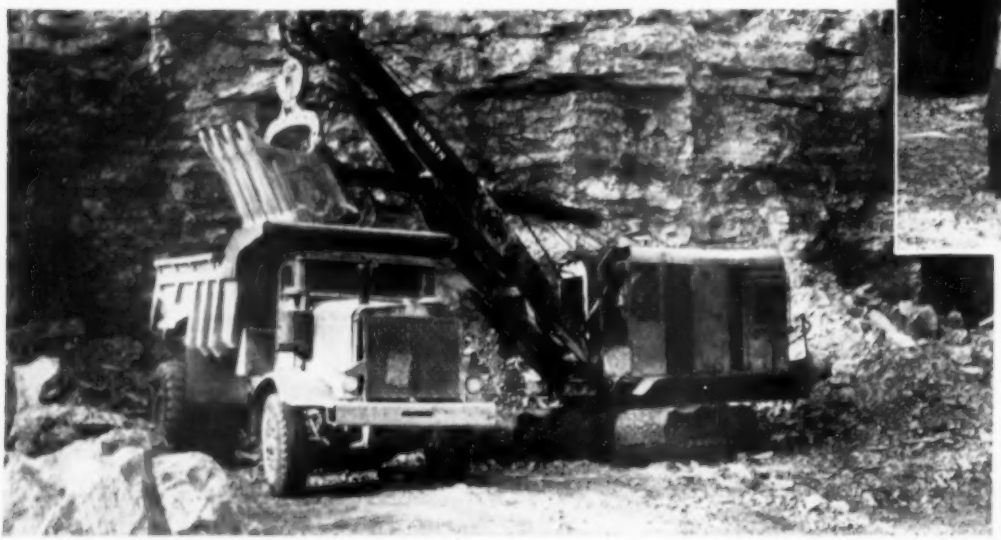
In Canada: Canadian Clark, Ltd.,
St. Thomas, Ontario

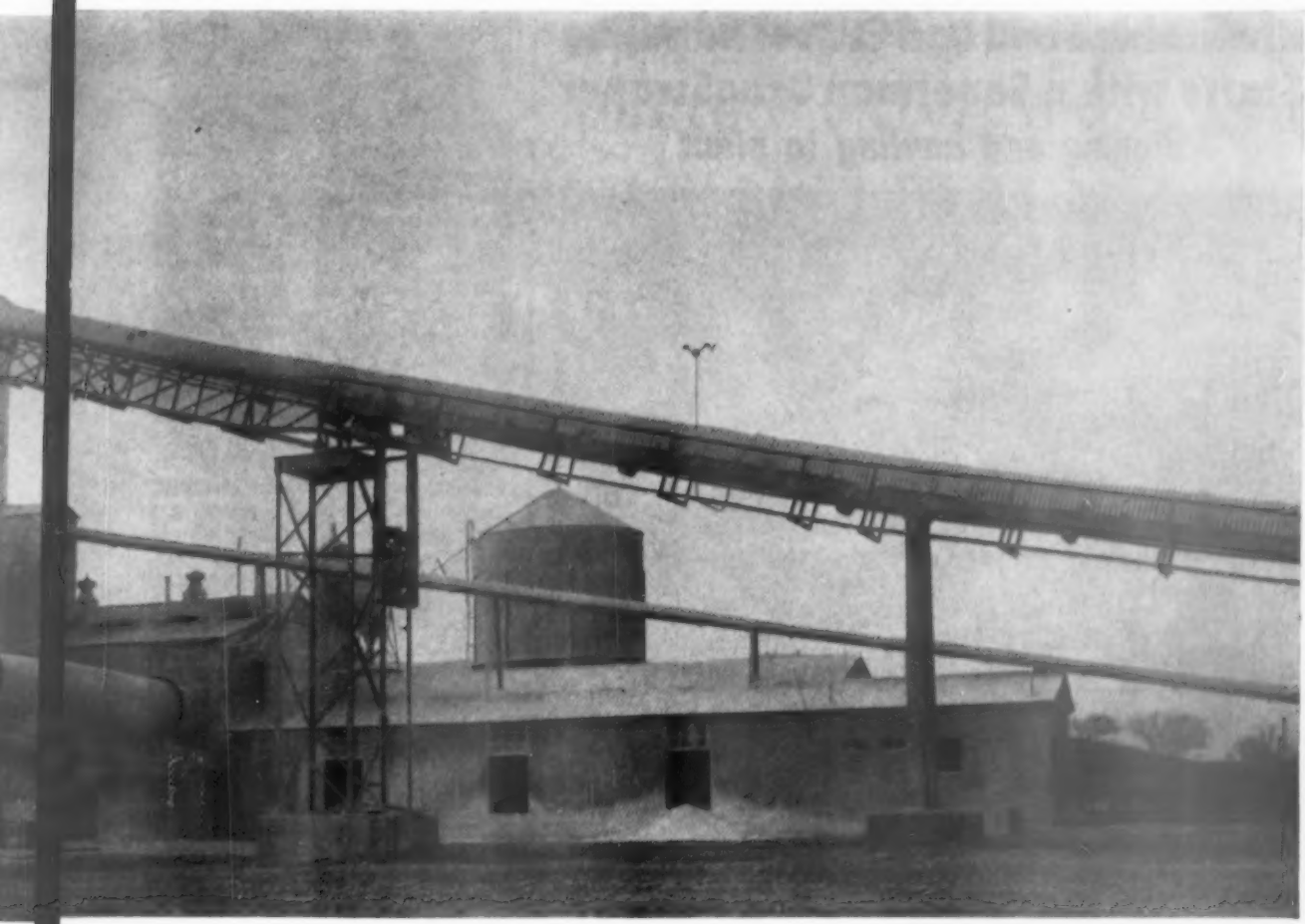
CLARK® EQUIPMENT



Gulf products are used exclusively in this pebble lime and hydrated lime plant of Linwood Stone Products Company, Davenport, Iowa. This sizeable operation includes a large rotary kiln for burning high calcium limestone.

At the Linwood quarry, J. F. McDonnell, Plant Superintendent, and Gunder Torstenson, Gulf Jobber, watch some of Linwood's heavy equipment at work. All equipment—in the plant and at the quarry—operates smoothly with Gulf quality fuels and lubricants.





Linwood Stone Products Company keeps equipment rolling smoothly with Gulf Quality Fuels and Lubricants

Trucks, shovels, crushers, conveyors, kilns—they all depend on Gulf products at Linwood Stone Products Company. There's a good, sound reason: Gulf fuels and lubricants help the cost-conscious men at Linwood to keep equipment operating smoothly, with fewer overhauls . . . fewer mechanical delays . . . lower maintenance costs.

For instance, Linwood reports that Gulf lubricants last up to three times as long as the lubricants they previously used.

Like to cut your operating costs, and get maximum performance from your equipment—both in your plant, and outside? Do as Linwood Stone Products Company did: call in a Gulf Sales Engineer. He will be glad to analyze your specific problems, and make proper recommendations. Just contact your nearest Gulf office!

GULF OIL CORPORATION
Dept. DM, Gulf Building
Pittsburgh 30, Pa.

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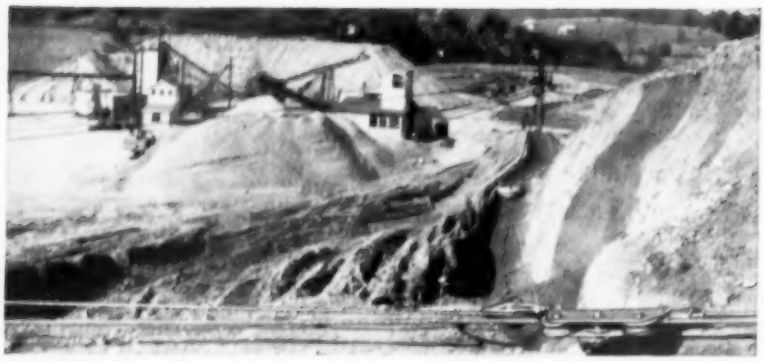
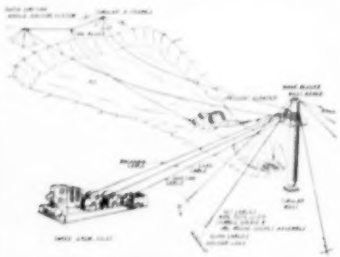
Profitable Sand and Gravel Handling Starts with a Sauerman DragScraper
digging *and hauling to plant*



3-yd. DragScraper digs and hauls sand and gravel from dry pit to plant hopper at 300 fpm.

This 2-yd. DragScraper is dumping river gravel dug from 50 ft. of water into grizzly feeding conveyor to plant. *See Sauerman News No. 147.*



● **THE SAUERMAN METHOD**— *showing a basic DragScraper installation. Variations of this method are Sauerman engineered to handle the toughest digging jobs at the lowest cost per cu. yd.*

A Sauerman DragScraper handles the two basic steps of material flow—digging and hauling—in one continuous operation. No double handling is required. You cut labor costs in half—or even more—because a single machine, controlled by one man, replaces the multiple equipment required by other methods.

Profitable handling is further assured by a maintenance cost of only 1½ cents per cu. yd. for the average size Sauerman installation. On larger machines, the increased volume drops this cost still lower. You'll save money on power, too, by eliminating heavy machinery with limited handling-to-dead weight capacity. You pay only the cost of moving the actual digging tool—a Crescent DragScraper.

The best Sauerman Machine for your plant is governed by the nature of the deposit, location of material, depth and plant layout. DragScraper machines in sizes from ⅓ to 15 yds. provide direct delivery to feeder, scalper or crushers at the lowest cost per cu. yd.

Why not consult Sauerman engineers about your plant? Their recommendations will be based on almost fifty years of sand and gravel excavating machinery experience. Ask for Catalog A (DragScrapers).

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Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

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PEOPLE IN THE NEWS

(Continued from page 40)

cording to an announcement by P. A. Groll, executive vice president-manufacturing. A graduate of Georgia Institute of Technology, Atlanta, Ga., with a degree in mechanical engineering, Mr Haigh joined the Birmingham, Ala., plant of Lehigh in 1948 as a mechanical engineer. He was named plant engineer in 1950 and transferred to the Bunnell plant in 1954 where he has served as plant engineer.

Union Gypsum appointments

M. R. PRESTRIDGE has been named president of the Union Gypsum Co., Phoenix, Ariz., to succeed Henry C. McQuatters. Carlton M. Rogers has been appointed vice president; Rav L. Moore, secretary-treasurer; and R. G. Shorthouse, Jr., assistant secretary-treasurer.

Kirk Hazelton, who has been associated with the gypsum industry since 1924, has been appointed general manager of the company. He formerly served with United States Gypsum Co., Chicago, Ill., National Gypsum Co., Buffalo, N.Y., Certain-teed Products Corp., Ardmore, Pa., and Cleveland Gypsum Co., Cleveland, Ohio, in research, service, sales, production and management. For several years he was assistant general manager of Perlite Div., Great Lakes Carbon Corp.

Kirk Hazelton

Mr. Hazelton will be assisted by Leo Hakes, plant manager, and Archie Lee, quarry superintendent. William O. Moylan continues as sales manager for California, and Jerry Bruce as sales manager for Arizona, Nevada, New Mexico and west Texas.

Research editor for ROCK PRODUCTS

KNEELAND A. GODFREY, JR., joins ROCK PRODUCTS as a research editor, bringing with him the useful combination of college training in civil engineering and magazine journalism.

Mr. Godfrey graduated from the University of Wisconsin, Madison, Wis., with a B.S. degree in civil engineering and while there became editor of the college monthly *Wisconsin Engineer*. To pursue his interest in technical writing, Ned received an M.S. degree in journalism from Northwestern University, Evanston, Ill.

He has worked for a consulting civil engineering firm in Milwaukee, and was also employed by a building construction firm there. While at the University of Wisconsin, he wrote a thesis on the design of a highway to ease congestion through that city, which, though only a college paper, received serious interest from local officials.

Ocean Cement president

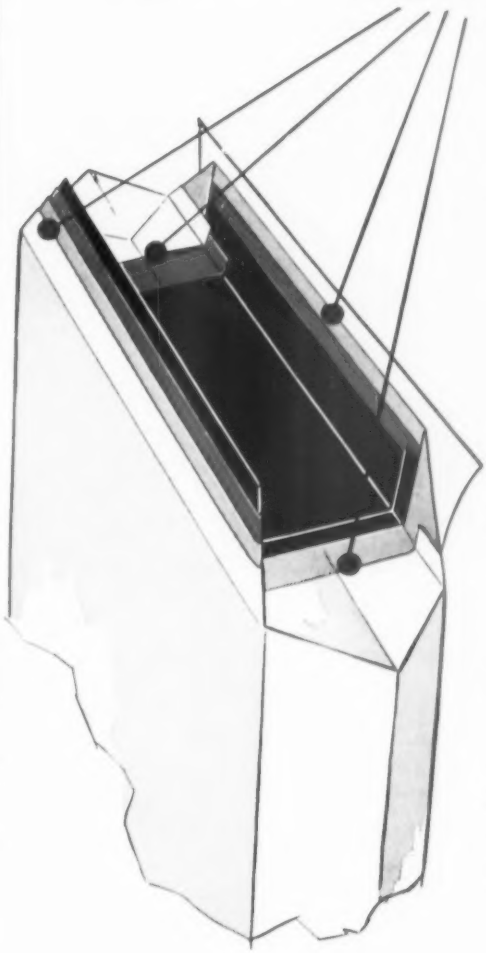
GORDON FARRELL has been named president of Ocean Cement and Supplies, Ltd., which is a merger of Evans, Coleman & Gilley Bros., Vancouver, and British Columbia Cement Co. Ltd., Victoria, Canada. Mr. Farrell, who is president of Evans, Coleman & Gilley Bros., was recently named president of the British Columbia Cement Co., of which he is a director. Born in Huddersfield, England, Mr. Farrell was brought to Canada by his parents and educated in Vancouver, B.C.

Director of mining

DR. FREDERICK C. KRUGER has been promoted to director of mining and exploration, International Minerals and Chemical Corp., Chicago, Ill.

(Continued on page 50)

Bemis STEPPED-END pasted valve bags are "stepped" FOUR places



to give you . . .

Excellent valve closure

No sifting at bag corners

Added strength

Easy handling

A very clean package

The Bemis design "steps" the plies in *four* places . . . not just two . . . to give the bag ends the *maximum* bond. Naturally, this provides the *maximum* siftproofness, cleanliness and strength. Bemis Standard Cement Bags have led in quality for years. Bemis Stepped-End Cement Bags lead the field in this new construction.

Bemis is your best source for whatever type of cement bag you need

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P&H

ELECTRICS

ARE WORKING FOR SOUTHERN PERU COPPER

In their operations as high as 13000 feet in the Peruvian Andes at Toquepala, Peru, Southern Peru Copper is using P&H Electric Shovels. Their maximum availability and minimum maintenance are vital to high production. In addition to 10 P&H Model 1800 machines, Southern Peru Copper has purchased 23 P&H diesel powered excavators.

Only P&H Electric Shovels have these outstanding exclusive features.

MAGNETORQUE® . . . the electro-magnetic type coupling that transmits power from the hoist motor to the dipper for faster action, eliminating shock and impact to the hoist gear train and motor. Response is immediate to varying load conditions.

ELECTRONIC CONTROLS . . . providing the fastest action of any type of control available on electric shovels. All motions are smoother, resulting in consistently higher output.

Whether it's big P&H Electric Shovels from $3\frac{1}{2}$ through 8 cu. yds., or smaller P&H excavators, it will pay you to choose from the P&H complete line. P&H offers single source responsibility for all your open pit mining needs.

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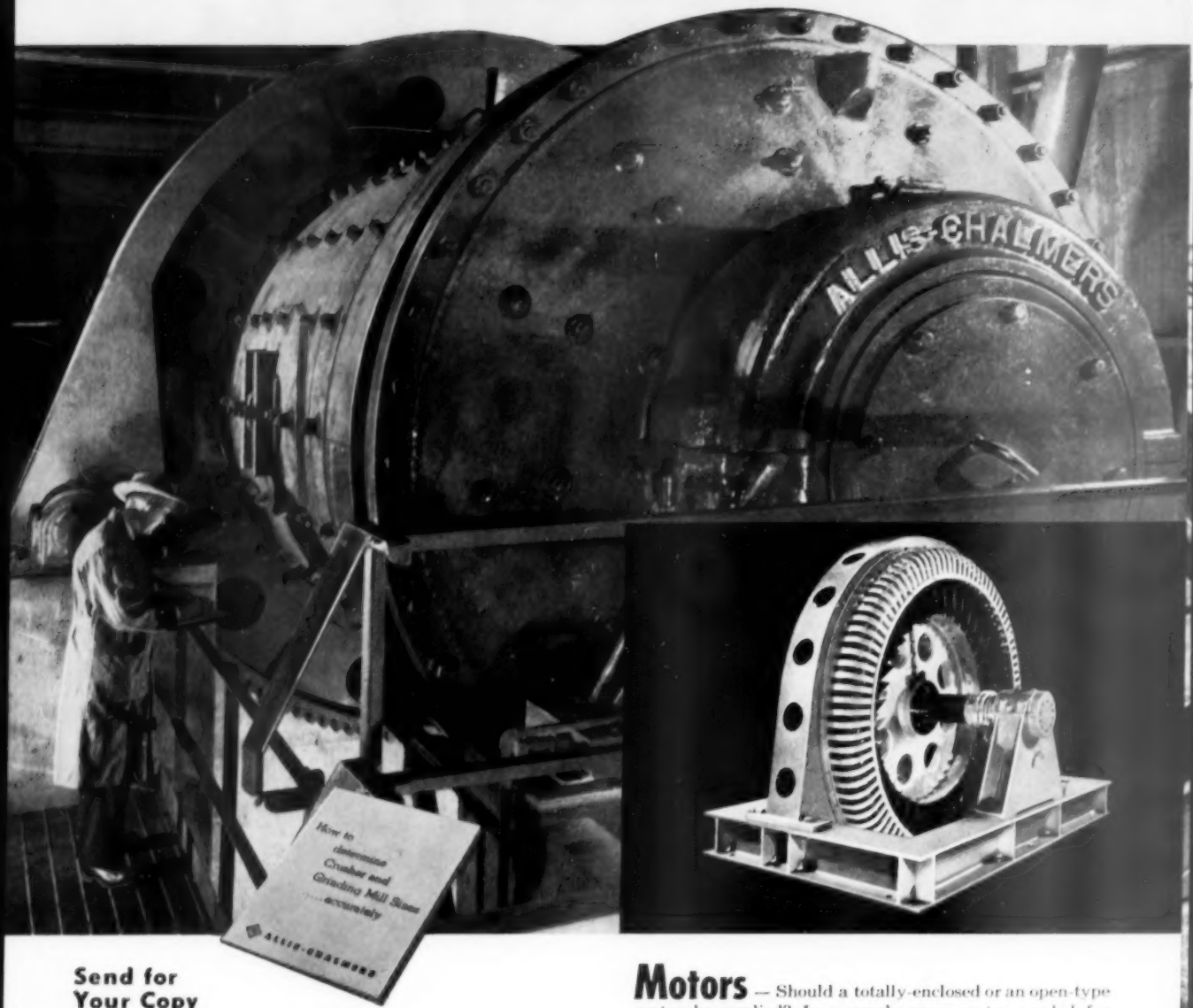
THE ANDES

There's Only One SURE

Matched and



Send for Your Copy

This bulletin with its explanation of the "work index" formula enables you to evaluate any crushing or grinding operation . . . . compare efficiencies of plants, circuits, and machines. Write for this valuable reference. It offers the only truly scientific method of determining the right machine — the only scientific approach to maximum production at lowest cost. Ask for Bulletin 07R7995. Individual bulletins covering specific equipment are also available.

Motors — Should a totally-enclosed or an open-type motor be applied? Is a synchronous motor needed for power factor correction? The right answers to these questions are important to you. By applying the "work index" formula, Allis-Chalmers engineers can determine the required power input and apply the right size motor needed for optimum efficiency. Familiarity with a wide range of cement and processing operations helps us apply the "work index" method to your equipment applications correctly.

Get all the facts. See your Allis-Chalmers representative or write Allis-Chalmers, Industrial Equipment Division. Milwaukee 1, Wisconsin.

ALLIS-

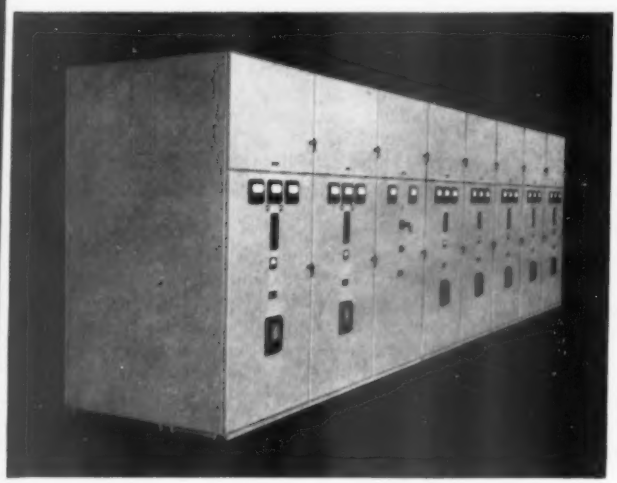
WAY of Getting Equipment

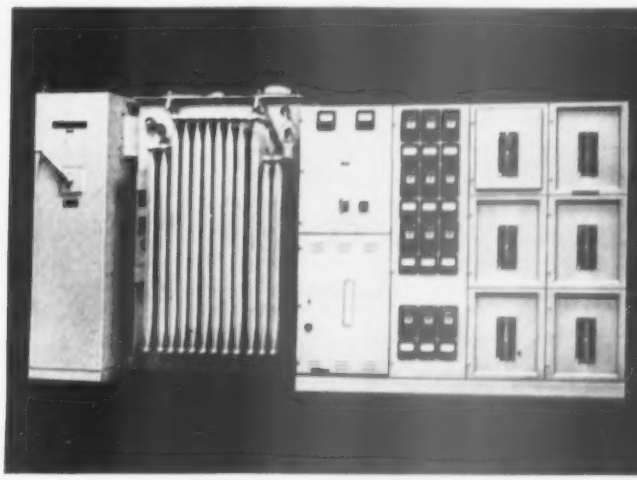
Correctly Applied

Specify Allis-Chalmers Processing Machinery *And* Electrical Equipment for the Cement Industry

Allis-Chalmers has long been recognized as a leading supplier of processing machinery for the cement industry. In fact more than 50% of the nation's cement is produced with A-C crushers, mills, screens and kilns. Allis-Chalmers is also one of the largest manufacturers of power equipment. *No other company* makes both the mechanical and electrical machinery for the cement industry. As a result, no other manufacturer has comparable facilities and experience necessary to apply and coordinate all equipment for a complete cement plant.

Industry's Top Technical Team at Your Service — Before a recommendation is made, requirements and variables are given a careful going-over by an Allis-Chalmers team comprised of research, design, manufacturing and application specialists from the electrical equipment and processing machinery departments. Characteristics of material, capacity, feed, preparation, balance of gradation, torque characteristics, system power factor needs are some of the many factors evaluated. Ideas and technical information evolving from this "meeting of minds" are then correlated in *one* department specializing in cement industry application. Components are matched to meet the requirements of your job. Responsibility for complete plant efficiency rests with one company.





Control — "Inching" a grinding mill is a push-button operation with synchronous motor control. Holding down the "inch" button rotates mill. The costly, time-consuming inconvenience of transferring from operating bus to inching bus is eliminated by using an automatic throw-over arrangement utilizing two high voltage air contactors.

Completely automatic and packaged pyro-processing control, with speed of feeder and kiln synchronized, is another recent Allis-Chalmers development.

Unit Substations — Allis-Chalmers LCS unit substations pay off in flexibility, ease of installation, maintenance, safety. Completely factory engineered incoming line units, transformer and low voltage switchgear combinations are coordinated and applied specifically for your distribution system. You get features such as breaker storage in the disconnected position in the unit, independent long time and instant trip elements on the breaker, dead-front circuit breaker construction.

CHALMERS A-C ALLIS CHALMERS

A-5384

VERSATILE! **1 Mobile Drill now does all 4**

- AUGER BORING
- PERCUSSION DRILLING
- SOIL SAMPLING
- CORE DRILLING

the new, powerful

B-52 *pacemaker*

HYDRAULIC ROTARY DRILL with the exclusive **Hollow Stem Auger** . . . *lets you sample while you bore!*

ONLY 4-IN-1 RIG ON THE MARKET . . .

Mobile Drill's new B-52 PACEMAKER brings you unequalled versatility to meet today's demand for greater drilling speed and flexibility. Here's a rugged, powerful, heavy-weight workhorse that mounts on 1 or 1½ ton vehicles and will drive 4" sectional augers to 150' . . . N rods to 600' . . . and A rods to 1000'.

BIG POWER . . . BIG PERFORMANCE!

PACEMAKER's twin hydraulic feed develops 10,000 lbs. hydraulic ram force! Rig has own independent power plant, variable speed control on rotary drive.

COMPACT . . . SELF CONTAINED

Custom mountings are designed to meet your needs; special body fabrications provide storage racks for augers and watertight compartments for tools and accessories . . . everything to make the PACEMAKER a mobile, fast moving, time saving unit.

WRITE FOR BULLETIN TODAY!

For free illustrated folder and complete specifications on the new B-52 PACEMAKER, write

time-saver no. 1

22' TOWER—Permits withdrawal of rods in 20' lengths. Mechanically operated, jack-knifes to horizontal position for safe, legal highway travel.

time-saver no. 2

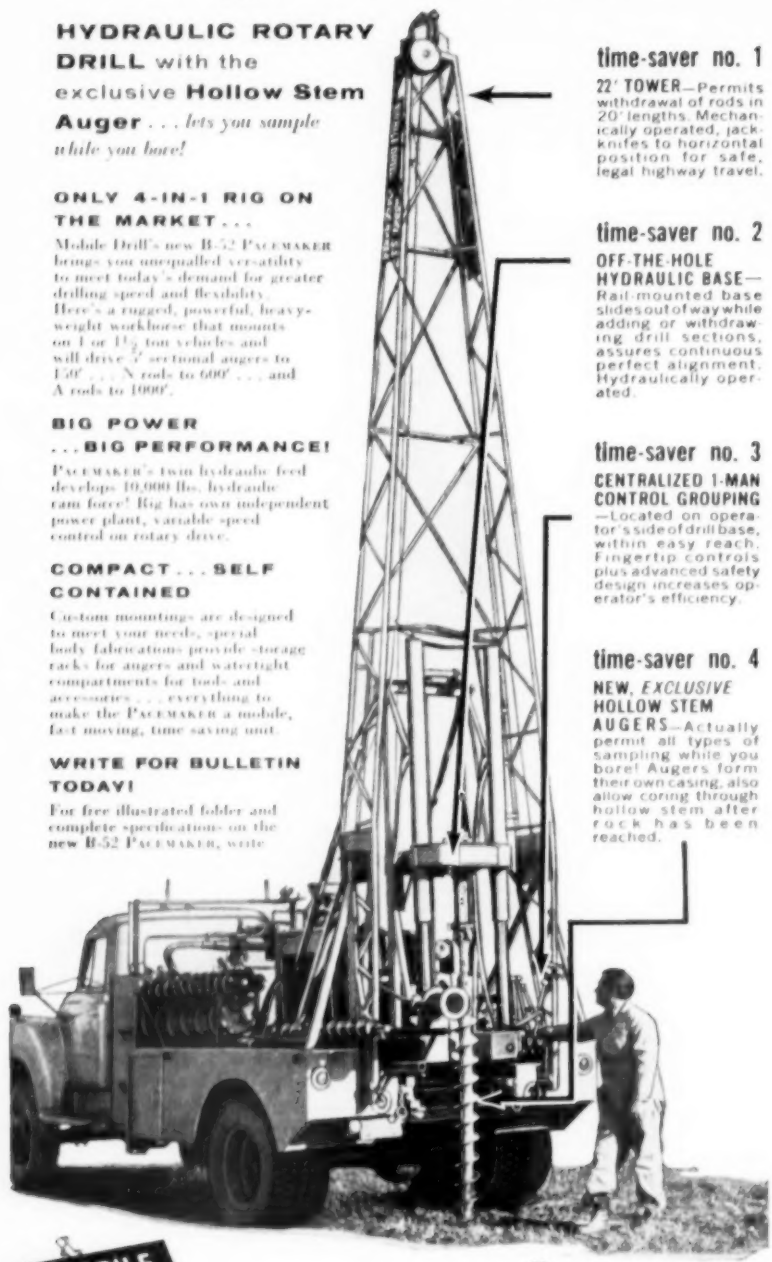
OFF-THE-HOLE HYDRAULIC BASE—Rail-mounted base slides out of way while adding or withdrawing drill sections, assures continuous perfect alignment. Hydraulically operated.

time-saver no. 3

CENTRALIZED 1-MAN CONTROL GROUPING—Located on operator's side of drill base, within easy reach. Fingertip controls plus advanced safety design increases operator's efficiency.

time-saver no. 4

NEW, *EXCLUSIVE* HOLLOW STEM AUGERS—Actually permit all types of sampling while you bore! Augers form their own casing, also allow coring through hollow stem after rock has been reached.



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From lightweight, jeep-mounted rigs to heavy-duty all-purpose drills—MOBILE DRILL CAN MEET YOUR NEEDS! All drills mounted to your specifications.

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PEOPLE IN THE NEWS

(Continued from page 45)

Director of research

GEORGE B. KIRK has been appointed director of research and development for Kaiser Gypsum Co., Inc., Oakland, Calif. Formerly assistant director of research, Mr. Kirk succeeds the late M. C. Dailey. In his new position, Mr. Kirk will direct the product development and research programs of the gypsum and insulating products division and supervise quality control programs at the plants in Antioch and Long Beach, Calif.; St. Helens, Ore., and Seattle, Wash.

Mr. Kirk joined the company in 1949 and served as field service manager before becoming assistant director of research. A graduate of Wesleyan University, Middletown, Conn., he received his master's degree at Harvard University, Cambridge, Mass. He is a member of the technical committee of the Gypsum Association, the American Society for Testing Materials, and the American Institute of Industrial Engineers.

Medusa director

ELMORE L. ANDREWS has been elected a director of Medusa Portland Cement Co., Cleveland, Ohio, to succeed G. Garretson Wade, who passed away recently. Mr. Andrews is senior partner in the law firm of Thompson, Hine & Flory, Cleveland.

Product manager

O. H. STOREY, JR., has been appointed product manager for gypsum products of The Flintkote Co., East Rutherford, N. J., with headquarters in the new building materials plant at Ennis, Texas. H. H. Whittemore is general sales manager of the building materials division.

(Continued on page 53)

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HD-21 crawler tractor, 204 net engine hp
315 scraper, 20 yd heaped, 15 struck

YOU CAN STRIP OVERBURDEN AND RECLAIM LAND PROFITABLY

with this crawler tractor-scraper team

There is a marked trend toward reclaiming worked-out pits—and a parallel trend toward the use of Allis-Chalmers crawler tractors and scrapers. Both are examples of wise management.

Land Reclamation—already a law in many states—eliminates to a large extent the scarred and worthless landscapes left by abandoned pits and piles of overburden. Properly reclaimed land usually returns far more than the cost of reclamation in higher resale value. Even where pits can be only partially filled, the land may be seeded profitably for pasture.

Allis-Chalmers HD-21 Crawler Tractor and 315 Scraper are ideal for this type of operation. This team is mobile and flexible enough to strip overburden and spread it immediately in a worked-out area of the pit. This eliminates the need of re-handling overburden and of calling in specialized equipment.

Curved and offset cutting edge on the scraper, plus torque converter drive on the tractor, are just two of many features that put this Allis-Chalmers team in a class by itself for this type of work. Let your Allis Chalmers construction machinery dealer give you the details. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

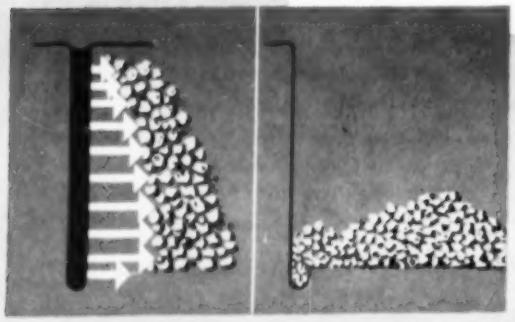
ALLIS-CHALMERS *Engineering in Action*

HERE'S A NEWS BULLETIN

▲ *This technical bulletin contains information that can help you get quieter, more efficient blasts.*

◀ *Every issue contains discussions on important blasting problems by D. M. McFarland, manager of the Technical Customer Service Section.*

▼ *New, improved blasting procedures are graphically explained. New materials are reviewed and evaluated.*



To keep users of explosives posted on the latest in blasting developments

You'll be up on new explosives products and blasting techniques that can give you more efficient, economical results when you become a regular reader of "*Better Blasting*."

"*Better Blasting*" is published as a technical service by Atlas Powder Company. Each quarterly issue contains important safety information and such features as loading procedures that pay off in better shots . . . methods that minimize noise and vibration, and assure improved public relations.

You'll especially look forward to "Mac's Notes," an interesting column by Dave McFarland, often called "the father of millisecond delay blasting."

Start "*Better Blasting*" coming your way—free of cost or obligation. Write Atlas to put your name on the mailing list.

Ask also about the new Atlas safety movie, "*How to Handle Women and Explosives*" . . . or the public relations film, "*We're Blasting Near You,*" which you can show to your neighbors to illustrate your efforts to minimize disturbance.

EXPLOSIVES DIVISION
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE
offices in principal cities

PEOPLE IN THE NEWS

(Continued from page 50)

Technical director

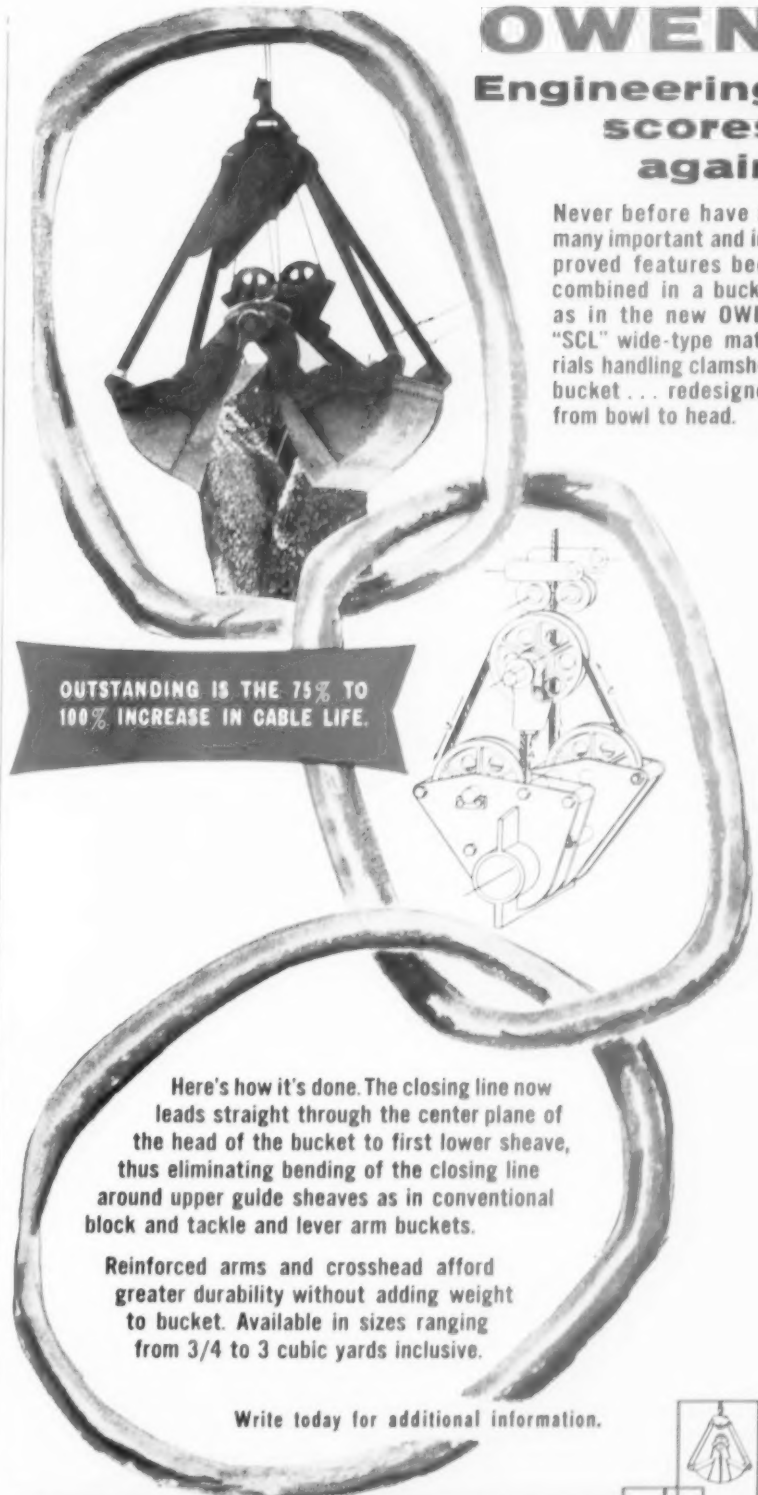
LUCAS E. PFEIFFENBERGER was named technical director of the Expanded Clay and Shale Association, Allentown, Pa., at the recent midyear meeting in Knoxville, Tenn. A graduate of the University of Illinois, Urbana, Ill., with B.S. and M.S. degrees in ceramic engineering, Mr. Pfeiffenberger was formerly associated with Alton Brick Co., Alton, Ill., where he was in charge of lightweight aggregate production and sales promotion. He is author of a paper "Problems of Manufacturing Lightweight Aggregate by the Moving Grate Process," published recently in the American Ceramic Society Bulletin.

The Association authorized an intensive test and research program, supervised by Mr. Pfeiffenberger, for the development of additional information about the properties of expanded clay and shale lightweight aggregates. B. K. Powers, Virginia Lightweight Aggregate Corp., Roanoke, Va., was appointed to head a committee to study plant operating methods. Shalite Corp., Knoxville, was host to the meeting.

Scott Turner honored

SCOTT TURNER, former director of the Bureau of Mines, Washington, D. C., has been chosen by representatives of the American Institute of Mining, Metallurgical and Petroleum Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers and American Institute of Electrical Engineers, to receive the Hoover Medal for 1957 for "distinguished public service." Presentation will be made in New York next February, at the annual meeting of AIME, of which Mr. Turner is past president.

(Continued on page 56)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Engineering scores again
Never before have so many important and improved features been combined in a bucket as in the new OWEN "SCL" wide-type materials handling clamshell bucket . . . redesigned from bowl to head.
OUTSTANDING IS THE 75% TO 100% INCREASE IN CABLE LIFE.
Here's how it's done. The closing line now leads straight through the center plane of the head of the bucket to first lower sheave, thus eliminating bending of the closing line around upper guide sheaves as in conventional block and tackle and lever arm buckets.
Reinforced arms and crosshead afford greater durability without adding weight to bucket. Available in sizes ranging from 3/4 to 3 cubic yards inclusive.
Write today for additional information.
The OWEN BUCKET Co.
BREAKWATER AVENUE, CLEVELAND 2, OHIO
BRANCHES: New York • Philadelphia • Chicago
Berkeley, Calif. • Fort Lauderdale, Fla.

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Big 64 square-foot body opening permits loading Dumptor over the side or either end. This saves spotting time, reduces spillage — increases haul production. Dumptor is quickly loaded by shovel, dragline, clamshell crane, or front-end loader.

One-second gravity-dump speeds haul cycles. Dumptor has no troublesome body hoist, no hoist maintenance. Gravity-dump never balks, and never wears out.

On the haul Dumptor® travels forward or backward in 3 identical speed ranges — no need to turn. Its fast shuttle speeds offer a big production advantage. Every turn saved cuts 15 seconds off cycle time.

With Koehring Dumptor you get

A BIG TARGET for FAST LOADING

In mine or quarry work, an easy-to-load hauling unit steps up output of the loader, reduces spillage, adds extra trips to daily production. Wide-flared body of 6-yard Dumptor provides a big, square target — *64 square feet, to be exact* — for loading over the sides or either end.

On the haul, heavy-duty Dumptor has plenty of tractive power. There's over 6 H.P. for every ton of loaded weight. It accelerates fast, pulls through soft ground with less shifting, can climb grades up to 24% fully loaded. With the same high speeds in either direction, fast-shuttling Dumptor travels round trip without loss of time for turning.

Dump action is simple and trouble-free. Operator trips a latch, and *gravity* dumps the load in *one second*. In sticky materials, free-swinging "kick-out" pan breaks load suction for fast, clean dump. When hauling rock, pan is bolted to floor of dump body — adds an extra ½-inch layer of steel protection.

Dumptor also has a ton of strength for every ton of payload capacity. Sides and ends of body are rib-reinforced. Double-plate bottom is lined with multiple steel beams. Chassis is heavily trussed. Your Koehring distributor has more information that will interest you. See him today, or write us for new Dumptor catalog.

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DIVISION OF KOEHRING COMPANY

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ideas
for low-cost handling of aggregates and cement

a

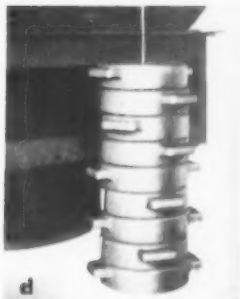
Water Batchers
give close quality control of concrete. Semi- or full-automatic. 120 and 240-gal. capacities.

b

Cement Batchers
6 sizes from 10 to 38 cu. ft. Scale capacities from 700 to 3000 lbs. Semi- or full-automatic controls.

c

Single-Material Batcher
properly sized for 1¼ cu. yd. batch. 2560-lb. beam capacity for stone — 1520-lb. beam capacity for sand.



d

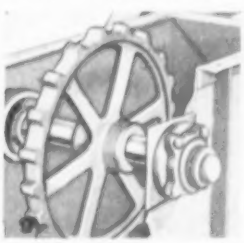
Batcher Test Weights
available in sets of nine 50-lb. calibrated units, and two 25-lb. steel hangers. Assure accurate weigh batching.

e

Yard Bin
is ideal for loading trucks where no batcher is required. 9-ft. clearance under discharge gate. Holds 35 cu. yds.

f

Elevator Buckets, Chains
2 types, 7 sizes of buckets for aggregates and cement. Johnson long-life steel chain has carburized knuckles.



g

Chain Sprockets
19-tooth, chilled rim cast iron with heavy split hub, double-rim lugs. Also, 12-tooth cast-chrome manganese.

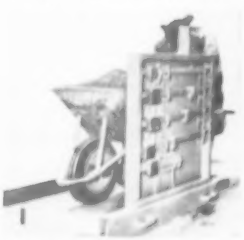
Elevator Safety Cage
Johnson ladder safety cage, welded to elevator casing, is 28 inches in diameter. Costs only a few dollars per foot.

i

Clamshell Buckets
all-welded, smooth inside and out. Fast-filling, easy closing. Manganese cutting edge. 3 types, 10 sizes, ⅜ to 3 yds.

k

Concrete Buckets
3 types: Finger-Tip Control in ½ to 2 cu. yd. sizes; 1 to 4 cu. yd. Johnson Drop; and 2 to 8 yd. Lo-Slump buckets.



l

Little Titan Scale
accurately weighs hundred barrows. Has one, two or three 500-lb. weigh beams. Light — 2 men can carry.

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the right answer to your air heater problems...

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FUELS – oil or gas with equally good results

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PEOPLE IN THE NEWS

(Continued from page 53)

Cement officials

GEORGE R. WHITMORE has been named chairman of the board of the Saskatchewan Cement Co., Regina, Canada, and William S. Ziegler, executive vice president of the Inland Cement Co., has been named president. George Ross, formerly sales manager of Inland Cement Co., has been appointed vice president of operations; and Edward Judd, financial officer for both cement companies, has been made secretary-treasurer. Directors, in addition to George R. Whitmore, William S. Ziegler and George Ross, include Andre Jadoul, F. Campbell Cope, D. M. Tyerman, Harold F. Benson and A. E. Blakeney.

ASCE president

LOUIS R. HOWSON has been elected president of the American Society of Civil Engineers. He succeeds Mason G. Lockwood, Houston, Texas. Mr. Howson is senior partner in the Chicago firm of Alvord, Burdick & Howson, consulting engineers.

BPR commissioner

PAUL F. ROYSTER has been appointed assistant commissioner for operations in the Bureau of Public Roads, Washington, D. C. Formerly assistant to the Under Secretary of Commerce for Transportation, Mr. Royster succeeds A. C. Clark who has retired. Mr. Royster will also be assistant federal highway administrator.

OBITUARIES

Henry L. Kennedy, sales manager of the construction specialties department of Dewey and Almy Chemical Co., Cambridge, Mass., died September 10. He was 60 years of age.

An international authority on concrete, Mr. Kennedy pioneered the use of grinding aids for the efficient manufacture of portland cement and air-entraining agents to improve the durability of concrete. He authored numerous articles and papers on portland cement and concrete construction, and was the winner of the Herschel Award of the Boston Society of Civil Engineers in 1947 for his paper on "Recent Developments in Concrete Durability." He was also co-author of a graduate engineer handbook and textbook on cement and concrete technology. He taught at Wentworth Institute for 12

years, lectured at Franklin Technical Institute, Boston, and was appointed lecturer at Harvard Graduate Engineering School in a special course on cement and concrete technology.

Mr. Kennedy studied architectural engineering at Northeastern University, Boston, Mass., and did graduate work in architecture at Beaune University in France. After several years as an architect and engineer, he joined Dewey and Almy in 1929.

A member of the American Concrete Institute since 1934, and a member of the administrative board since 1944, Mr. Kennedy served as ACI president in 1953-1954. He also served on ACI Committee 115, Research, and Committee 613, Recommended Practice for Proportioning Concrete Mixes. He was an active member of several committees of the American Society for Testing Materials, a member of the Boston Society of Civil Engineers, American Institute of Architects and American Society of Military Engineers.

William H. Constantine, sales manager for the Philadelphia division of Keystone Portland Cement Co., Philadelphia, Pa., passed away August 17. He was 58 years old and had been with the company for 29 years. Prior to joining Keystone as sales representative in 1928, Mr. Constantine was a partner in the firm of Czarra-Constantine Co. In 1942 he became superintendent for Putnam & Greene, Fort Wayne, Ind. He returned to Keystone in 1943 as sales representative and in 1949 was appointed sales manager of the Philadelphia division.

Ralph E. Larry, former vice president of the Pittsburgh Limestone Co., Pittsburgh, Pa., died August 31. A graduate of Brown University, Providence, R. I., Mr. Larry was vice president of the company until his retirement in 1950. He was a member of the American Institute of Mining, Metallurgical and Petroleum Engineers and the National Safety Council.

Charles H. Makins, founder and president of the Makins Sand and Gravel Co., Inc., Oklahoma City, Okla., died September 8. He was 69 years of age. A native of Abilene, Kan., Mr. Makins moved to Oklahoma City in 1912 and founded the Makins Sand and Gravel Co. in 1923.

H. Allison Neff, for many years operator of the Bluestone Quarries Co., died September 10. He was 88 years of age. Mr. Neff retired from the stone quarrying business when his firm was merged into the Cleveland Quarries Co., Cleveland, Ohio.

END

QUAKER CONVEYOR BELTING FOR TOUGH SHOCK RESISTANCE!

The Quaker belt you see above is made especially to take the impact and abrasive wear of sharp, jagged loads.

Carcass is formed of multiple plies of strong, high-quality cotton duck, with skim coat between plies. Average cover tensile strength is 2500 to 3000 lbs.

Do you need even greater troughability, flexibility or tension rating? Quaker can supply belts of new high tensile strength rayon or cotton-nylon fabrics. Any desired cover thickness.

Your Quaker Rubber-Quaker Pioneer Rubber distributor also carries a complete line of hose, packing and moulded rubber products for every use. Call him today.

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First on the job

THE AUTOCAR

When the going is tough and slippery, Autocar 6-Wheelers make it every time. You can't beat them for bulling heavy loads through mud, sand, wet clay, deep snow and ice. And on soft roads they give you turnpike traction. The axles of 6-wheelers provide extra driving wheels—a double contact with the road that brings you safely through. There are several tandem axles to choose from with ratings from 34,000 to 70,000 pounds, and Autocar engineers will help you choose the one that precisely meets your conditions of road and load. Then, in accordance with Autocar's custom-building practice, they design the rest of the unit to match—an integrated set of balanced heavy-duty components. The Autocar 6-Wheeler, like every other Autocar, has long life and stamina built into it. For the full story on the job these 6-wheelers can do for you, see your White-Autocar distributor.

White Autocar

AUTOCAR TRUCKS

AUTOCAR DIVISION

The White Motor Company • Exton, Pa.

after the storm

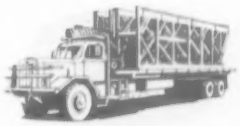
6-WHEELER

THE AUTOCAR 6-WHEEL CEMENT MIXER, capacities from 5½ to 14 cubic yards. Designed as an integrated, balanced unit, and specifically for the job.

THE AUTOCAR 6-WHEEL HIGHWAY TRACTOR pulls heavy payloads on long hauls. A real profitmaker in those states where multiple axles permit additional payload.

THE AUTOCAR 6-WHEEL LUMBER TRUCK drives right into the felling area and picks up a profitable load, with the sturdy construction and braking power to control it.

THE AUTOCAR 6-WHEEL OIL FIELD UNIT, ideal for hauling heavy loads. A sure winner over a rough track and geared to keep up with traffic on the highway.



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MORE THAN 700 MILLION POUNDS OF TEXACO MARFAK HAVE BEEN SOLD

BEAT THE DUST PROBLEM AND BOOST YARDAGE

Flying dust is no measure of getting yardage in a sand pit. But you can minimize this problem – keep your equipment in action – by lubricating on schedule with *Texaco Marfak*.

This world-famous chassis lubricant seals out dust and dirt, seals itself in the bearings . . . prevents rust. Its tough film stays put under heavy loads, keeping wear at a minimum.

On wheel bearings, use all-weather *Texaco Marfak Heavy Duty 2*. It provides extra protection against dirt and moisture, and assures safer braking for thousands of extra miles. No seasonal change required.

Or you can use just one lubricant, *Texaco Marfak Heavy Duty Special 2*, for chassis, wheel bearing, water pump and other grease lubrication. This lithium-base, multi-purpose grease resists water washout, stands up in the toughest service – always pumps easily at low temperatures.

Using *Texaco Track Roll Lubricant* on rollers assures smooth-running operation and complete protection against both rust and wear.

Your Texaco Lubrication Engineer is specially trained to help keep contractors' equipment running smoothly under all conditions. You can contact him by calling the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, New York.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

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INDUSTRY NEWS

Perhaps you've noticed . . .

that CONCRETE PRODUCTS now is being published separately and no longer is part of ROCK PRODUCTS.

CONCRETE PRODUCTS has been enlarged and considerably broadened in scope editorially to cover the growing concrete products industries more adequately. For information on obtaining regular monthly issues of the brand new CONCRETE PRODUCTS, write to

CONCRETE PRODUCTS
79 West Monroe St.
Chicago 3, Ill.

Canadian potash to be developed

INTERNATIONAL MINERALS & CHEMICAL CORP., Chicago, Ill., will construct a $20 million potash mine and plant at Esterhazy, Saskatchewan, according to Louis Ware, president. He said that the 3,000 ft., 18 ft. diam. mine shaft being sunk will cost $4 million, while mining equipment, refinery, storage buildings, machine and repair shops and additional plant facilities will account for the remainder of the estimated cost.

The development area includes 450,000 acres which International Minerals controls under permit. "Maximum automation" will be used at the plant, which will employ between 100 and 150 persons, said Mr. Ware.

Record high earnings, says American-Marietta

AMERICAN-MARIETTA CO., Chicago, Ill., authorized a three for two split of its common shares after reporting record high sales and earnings in the first nine months of 1957. Distribution of additional common shares, the fourth within six years, took place October 15. A quarterly dividend of 25 cents was paid on all existing common shares on November 1, as well as the quarterly dividend of $1.25 on preferred shares.

Net sales of $59,092,611 for American-Marietta Co. and its subsidiaries during the quarter ended August 31, 1957, increased 16.2 percent over sales in the comparable period a year ago.

Peerless-Hercules-Riverside merger is planned

THREE CEMENT COMPANIES WILL JOIN FORCES to become one of the nation's largest producers, with a capacity of about 18,500,000 bbl. per year. Negotiations are underway for a merger of Peerless Cement Corp., Detroit, Mich., Hercules Cement Corp., Philadelphia, Pa., and Riverside Cement Co., Los Angeles, Calif. Completion of the merger is expected in December, following approval by stockholders of the three corporations.

The firm which will result will have a new name, combined assets of about $66 million, and annual sales of about $50 million. Initial officers will include Garner A. Beckett, now Riverside president, as chairman of the board; W. C. Russell, Peerless president, as vice chairman of the board and chairman of the executive committee; and D. S. MacBride, now Hercules president, as president. The three corporations will be operated as autonomous divisions of the new company, with continuation of present brand and product names.

Described as "moving into the ranks of the nation's top six producers," the new company will have six plants, three Peerless plants in the Detroit area, with 6,500,000 bbl. per year capacity; two Riverside plants in southern California with capacity of 8,500,000 bbl. and Hercules' Stockerton, Pa., plant with 3,500,000 bbl. annual capacity.

Proposed expansion would enlarge limestone output

CHEMSTONE CORP., Cleveland, Ohio, a division of Minerals & Chemicals Corporation of America, may expand operations at its Marblehead limestone quarry. A proposed $1.5 million expansion program would lower the average depth of digging operations from 20 to 60 ft. This would utilize the commercial grade stone underlying the high calcium fluxstone which the quarry supplies to the steel industry.

A new processing plant would be constructed to handle the lower grade stone. This would consist of two new crushers, stockpiling facilities, multi-screening houses, washing plant and a conveyor system directly to the docks. Present facilities permit limited bulk handling of the lower quality stone and are centralized in the quarry away from the dock.

Closes fluorspar mill

KAISER ALUMINUM & CHEMICAL CORP., Oakland, Calif., has closed its fluorspar mill near Fallon, Nev., and placed the facilities on a standby status for an indefinite period.

The mill, erected in 1952, produced an acid grade fluorspar concentrate from ore mined by the company near Gabbs, Nev. The mine was closed earlier this year by depletion of deposits at the location and the mill had been operating on stockpiled ore.

Expanded shale producer acquires Ohio firm

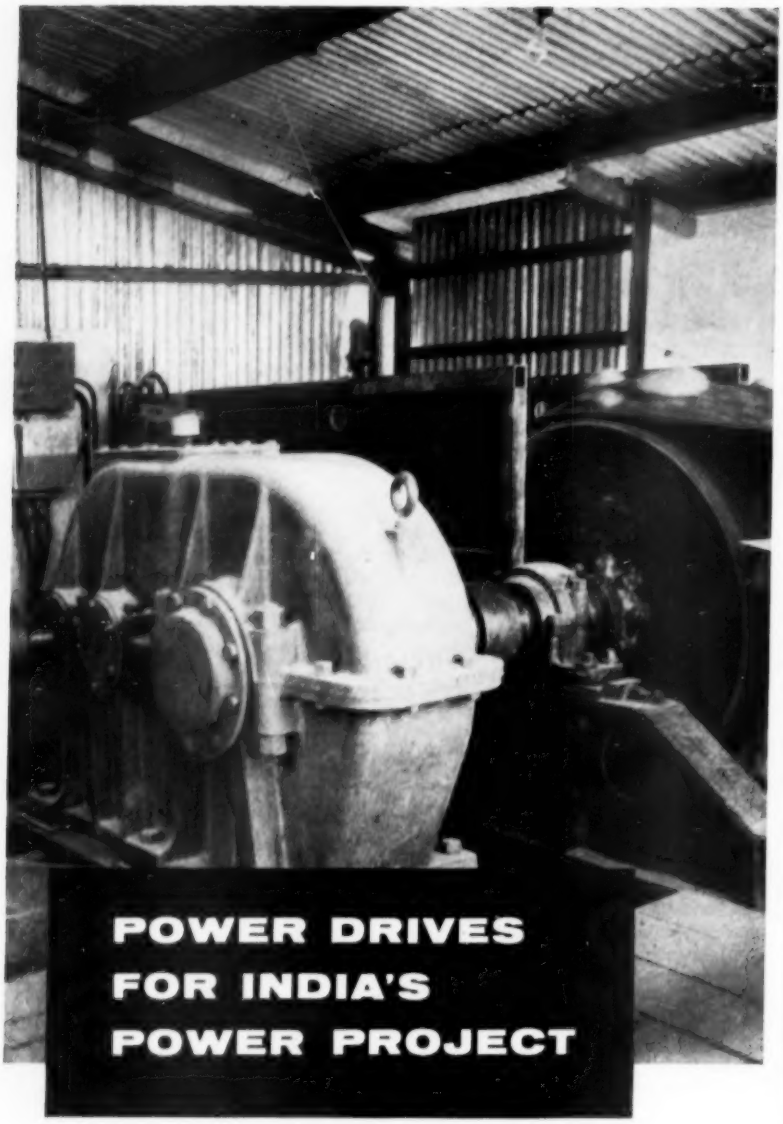
New Lexington plant

BUILDEX, INC., Pittsburg, Kan., has purchased Lite Stone Aggregate Corp., New Lexington, Ohio. Announcement of the transaction was made by George K. Mackie, Jr., Buildex president. Addition of new facilities, said Mr. Mackie, increases production capacity at Buildex to about 300,000 cu. yd. annually.

The Ottawa, Kan., Buildex plant started production of lightweight expanded shale aggregate (haydite) in March 1952, using two 8 x 125-ft. rotary kilns.

In addition to Mr. Mackie, other Buildex officers are: Cecil W. Kincaid, vice president—production; B. F. Park, vice president—sales; and John W. Mackie, Jr., secretary treasurer. William M. Joyce, formerly sales engineer for the Ottawa plant, will serve as sales manager of the New Lexington plant.

(Continued on page 62)



India is harnessing the mighty Sutlej River with the $125 million Bhakra Dam to provide power and irrigation for the Punjab area. Twenty-five Jones Herringbone Speed Reducers drive 51 Hewitt-Robins belt conveyor units used to carry aggregate over three miles of extremely rugged terrain and two miles through processing operations.

Jones Power Drives were specified because their quality construction assured continuous operation. To find out how Hewitt-Robins products and services can help you, consult your classified telephone directory for the nearest Hewitt-Robins representative, or contact Hewitt-Robins, Stamford, Conn.

HR HEWITT-ROBINS

CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

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INDUSTRY NEWS

(Continued from preceding page)

Flintkote Co. opens Sweetwater gypsum plant

FLINTKOTE CO., New York, N. Y., has begun production at its new $5 million gypsum products plant in Sweetwater, Texas. Perce C. Rowe, Flintkote president, sounded a blast on an old Santa Fe locomotive whistle to open the plant officially. A spur line from the Santa Fe railroad serves the plant. Paul D. Orleman is manager of the Sweetwater plant, which employs 200 people.

March operation set for new crushing plant

W. G. MATHEWS JR., INC., Clifton Forge, Va., announced location of a crushing plant in Alleghany County, for production of concrete aggregates and roadstone. Construction was begun a few weeks ago and the plant is expected to be in operation by March 1, 1958. It will have a capacity of 150 tph.

Core drilling has revealed that the deposit contains several million tons, and that the stone is 92 percent plus calcium, low in silica and iron. It meets the requirements of the Virginia Department of Highways for grade A stone.

Portland cement production

PRODUCTION OF FINISHED PORTLAND CEMENT in June 1957, as reported by the Bureau of Mines, totaled 26,462,000 bbl., a decrease of eight percent from June 1956. Mill shipments for the month were 29,545,000 bbl., down eight percent. Stocks of 29,880,000 bbl. of finished portland cement on hand June 30, 1957, were 32 percent greater than those on hand a year earlier. Clinker production during June 1957 totaled 24,586,000 bbl., down eight percent from June 1956.

The output of finished cement came from 152 plants in 37 states and Puerto Rico. During the same period of 1956, 28,771,000 bbl. of finished cement were produced.

Lease quarry property

ANDERSON & OXANDALE CRUSHED ROCK PRODUCTS CO., Herrington, Kan., has leased a rock quarry on the Allen B. Johnson farm near Galva, Kan. Equipment valued at $250,000 has been installed. Rock going into the crushers will be blasted out of a low rock ridge running through the Johnson farm.

(Continued on page 68)

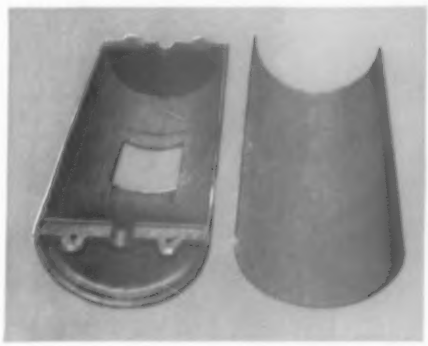
LOCK JOINT PIPE COMPANY of NEWINGTON, CONN., REPORTS:

6 times longer service life with JALLOY steel plate

Mild steel plate at bottom of this cement agitator had to be replaced every 4 weeks. The ¼" Jalloy plate, now used, lasts from 22 to 24 weeks. The Lock Joint Pipe Company has a resultant saving in reduced downtime and steel cost.

Heat treated Jalloy steel will also extend the life of your products that are subjected to rigorous impact and abrasive conditions. Increased product life can reduce your downtime and maintenance costs. Jalloy is available in forms you require (hot rolled sheets, plates, bars, small shapes and structurals). It can be purchased in three different grades to meet requirements of formability, hardness and wear resistance.

Your local distributor can supply you with details on Jalloy grades, or you can write to Jones & Laughlin Steel Corporation, 3 Gateway Center, Pittsburgh 30, Pennsylvania.



This Jalloy plate is formed cold into a half circle 14 inches across the open end. Length of the agitator bottom plate is 30 inches. Dick Griffith, superintendent at the Newington, Conn., plant, reports that Jalloy steel plate stands up under the tough abrasive action of the cement dry mix and the pounding of the 16 agitator teeth. Material for this installation is supplied by Brown-Wales Co., Cambridge, Mass.

JL STEEL **Jones & Laughlin**

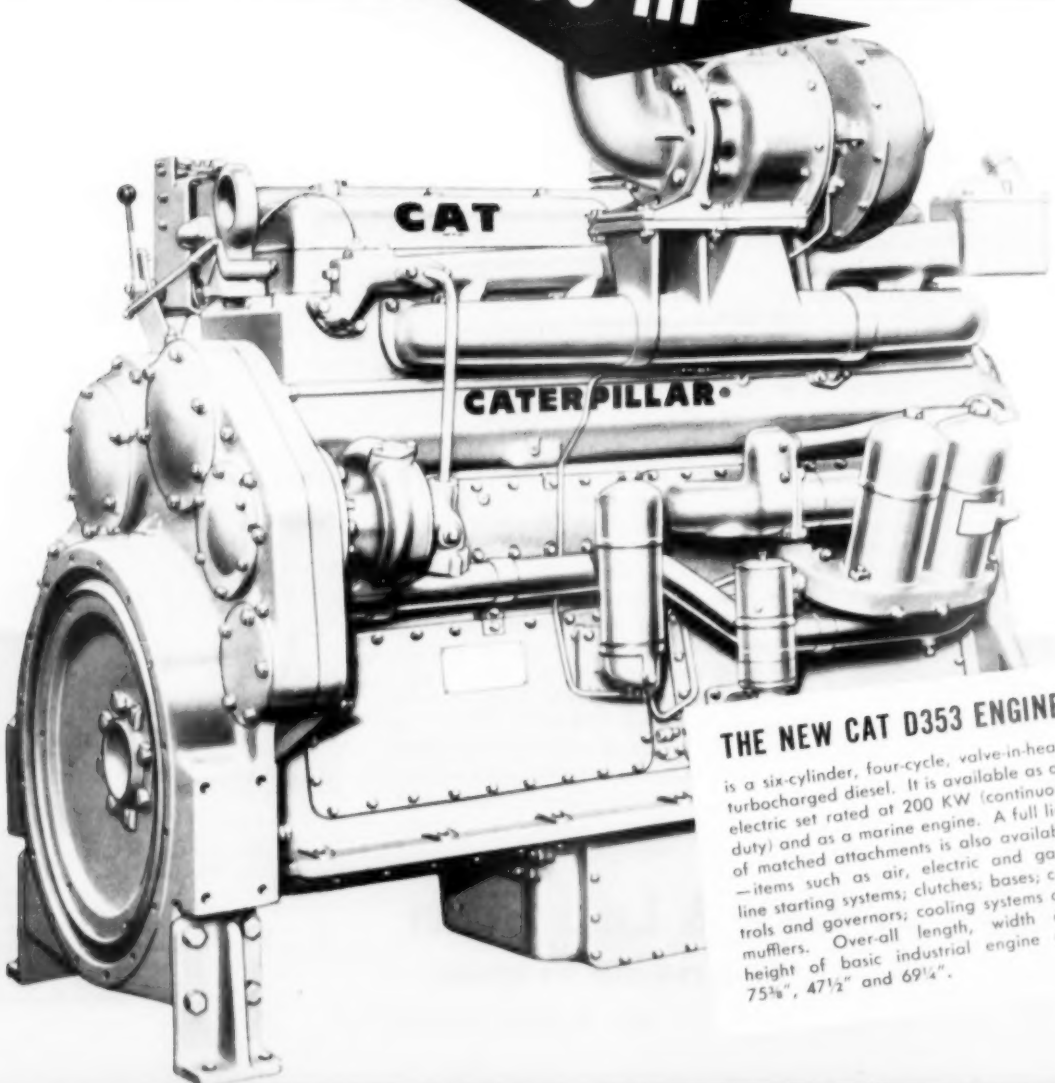
. . . a great name in steel

Enter 1093 on Reader Card

Caterpillar announces in the world's most

The engine that delivered outstanding is now available as the D353 Industrial

D397 650 HP† | D375 430 HP† | **New D353 390 HP†** | D342 225 HP† | D339 140 HP†



THE NEW CAT D353 ENGINE

is a six-cylinder, four-cycle, valve-in-head turbocharged diesel. It is available as an electric set rated at 200 KW (continuous duty) and as a marine engine. A full line of matched attachments is also available—items such as air, electric and gasoline starting systems; clutches; bases; controls and governors; cooling systems and mufflers. Over-all length, width and height of basic industrial engine are: 75⅜", 47½" and 69¼".

another heavy-duty engine advanced line of diesels

performance in the famous D9 Tractor Engine, Electric Set and Marine Engine

D337	D326	D318 (SERIES G)	D315 (SERIES G)	D318	D315	D311
310 HP†	200 HP†	175 HP†	115 HP†	137 HP†	91 HP†	65 HP†

†Maximum output capacity

Adding to Caterpillar's line of modern heavy-duty engines, there's now the Turbocharged D353 rated at 390 HP (maximum output capacity). This engine, a prototype of the unit in the mighty D9 Tractor, is job-proved after thousands of hours of operation in the field!

Like all modern CAT* Diesels, the D353 incorporates in its design the advanced features developed by Caterpillar in a quarter century of diesel leadership. Compact and sturdy, it is built for the hard work. Its four-cycle design delivers the long, effective power stroke that puts power to more efficient use than other types of engines. Its turbocharger utilizes waste energy from the engine exhaust to increase over-all efficiency and economy. Its fuel system requires no adjustment. There are no cylinder ports to clean. And its exclusive Caterpillar single-orifice injection valves, combined with the precombustion chambers, permit the use of a wide range of fuels including premium diesel fuels as well as low-cost No. 2 furnace oil *without fouling*. All these and other features add up to performance that no unit in its power class can match.

With the addition of the D353 to the Caterpillar Engine line, you now have a wider choice than ever for your requirements. Engines are available up to 650 HP (maximum output capacity) and electric sets up to 350 KW (continuous duty). Either as original or replacement power, there's one among hundreds of different arrangements that exactly meets your needs. Leading manufacturers of machinery can supply these models in the equipment they build.

For complete information about the new D353 and other Cat Diesels, see your Caterpillar Dealer. Let him show you how diesel leadership based on a quarter century of experience can engineer the modern, heavy-duty diesels of tomorrow.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Caterpillar "Firsts" in a Quarter Century of Diesel Leadership

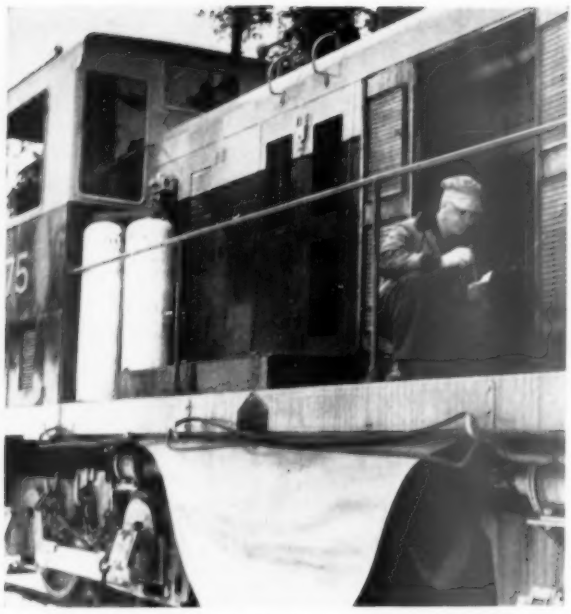
- "Hi-Electro" hardened cylinder liners
- Chemically conditioned cylinder liners
- Stainless-steel piston protectors
- Aluminum alloy bearings
- Interchangeable, adjustment-free fuel injection equipment
- Capsule-type injection valves
- Service meters
- Superior lubricants (detergent oils)
- Notarized, certified power

AND MANY MORE!

Certified Power for Cat Diesel Engines

Through the years, Caterpillar Engines have earned a reputation for *honestly rated power*. Now Caterpillar backs this reputation with a *notarized certificate* covering the horsepower capabilities of each engine. Caterpillar is the first and only manufacturer to give you this assurance of capacity. You have a right to demand *certified power* when you invest in an engine. You get it when you buy from your Caterpillar Dealer!

A single drop of used oil from this truck indicates true condition of the vehicle's oil . . . and tells a lot about the engine's operation.



Daily oil checks assure maximum lubrication efficiency in this diesel locomotive.

Now—they're testing used oil in minutes

THE NEED for a fast, accurate and practical method for determining the condition of used oil has long been one of the more serious problems confronting fleet operators. It's obviously wasteful to discard still-good oil, but operating a vehicle with contaminated oil could lead to costly engine damage. This was an unsolvable condition which maintenance men had come to accept.

Since no two vehicles, even of the same make and model, are identical in performance or operation, maintenance men were compelled to compromise on oil change "averages" recommended by engine manufacturers. This procedure is uncertain and costly. Fortunately, this operating conflict has been resolved with the introduction of a simple but completely reliable oil check system . . . the Shell ADC Oilprint Analysis.

The ADC Analysis was primarily conceived to determine proper oil change intervals for individual engines. However, it goes much further. It is capable of actually reducing engine maintenance costs by disclosing certain mechanical defects *before* they have caused serious engine damage.

The test procedure is very simple . . . requires little practice to perfect . . . and provides a reliable check of oil from merely two drops of used oil. In minutes, the degree of *A*lkalinity, *D*ispersancy and *C*ontamination can be determined easily.

Here are several typical examples from various areas of the country. They show how fleet operators, employing both diesel and gasoline engines, have successfully and profitably applied the ADC program.

A Kansas City Freight Line

Operating a large fleet of trucks, one Kansas City freight line previously had drained and replaced oil every 3,000 miles. After adopting the ADC Oilprint Analysis, individual test charts showed that, in most cases, drainage would not be necessary at less than 6,000-mile intervals. Even at this doubled interval, engine life was not affected. Further proof was established when these engines were inspected at 87,000 miles and no appreciable wear was found on bearings, pistons, rings or valves.

An Idaho Logging Operation

Oil had previously been drained after a limited number of hours of use on an Idaho company's diesel locomo-

Substantial oil economy is realized in this tractor, because oil is changed only when indicated by the Oilprint.

Taking a quick "fingerprint" of crankcase oil from an interstate carrier.

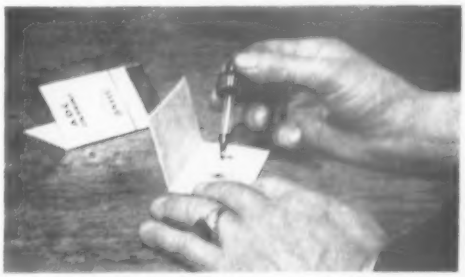
tives. With the ADC Oilprint Analysis as a guide, the oil-change interval has now been safely increased many-fold. The savings made possible by this on-the-spot test in oil, filter change and labor costs were considerable. Furthermore, leaky head gaskets are frequently discovered before any serious engine trouble develops. Here is another valuable plus for the ADC Oilprint Analysis.

A Washington, D.C., Transit Company

This transit company operates a large fleet of buses with both gasoline and diesel engines in use. With the difference in operating schedules . . . rush hours, short and long hauls, around-the-clock schedules . . . both engine types were believed to require complete oil changes every 2,000 miles. When the ADC program was instituted, the tests showed that oil-drain periods and minor maintenance checks could be safely extended to every 3,000 miles for gasoline engines and 4,000 miles for diesel engines.

Fleet operators, who are concerned with extending the service of crankcase oil and avoiding the risk of using contaminated oil, are invited to sit in while a Shell service engineer demonstrates the time-and-money advantages of an ADC Oilprint Analysis program.

Photo shows an oil-spot test card . . . one phase in the visual life record of a change of oil.



One drop of a special indicator* fluid developed by Shell checks the alkaline reserve in the oil.

*Indicator Fluid U.S. Patent No. 2,770,590

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, NEW YORK
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

SHELL

Enter 1049 on Reader Card

INDUSTRY NEWS

(Continued from preceding page)

Lightweight aggregate plant rising in Arkansas

A GROUP OF EL DORADO, ARK., businessmen have bought 450 acres of land in England, Ark., for erection of a lightweight aggregate plant. Presence on the property of clay in commercial quantities prompted purchase of the site by Glenn Dill, H. S. Woods, W. A. Turner and A. G. Kassos.

The $400,000 plant, covering 10 acres, will employ 35 persons in three 8-hr. shifts. It will be located on the Cotton Belt Railroad and State Highway 30.

Phosphate washing plant, materials deposit sold

VICTOR CHEMICAL WORKS, Chicago, Ill., has acquired a phosphate ore washing plant and 2,700-acre phosphate deposit near Mount Pleasant, Tenn., from Federal Chemical Co., Louisville, Ky. The plant adjoins Victor's Globe phosphate washing plant.

National Gypsum annual earnings are forecast

NATIONAL GYPSUM CO., Buffalo, N. Y., will approximate $144 million in sales for 1957, according to Melvin H. Baker, chairman of the board. Earnings estimated at $3.25 a share are down from $3.68 per share on the $151,859,497 sales in 1956. "The dip in earnings is about as low as we expect it to go," said Mr. Baker.

Sales for the current half year are budgeted at $3 million above the first six months volume of $69.9 million, with the increase to be achieved largely from sales of new products brought out this spring and summer, some increases in prices and reflection of plant improvements.

Pavement yardage

AWARDS OF CONCRETE PAVEMENT for the month of August and for the first eight months of 1957 have been listed by the Portland Cement Association as follows:

	Sq. yd. awarded during	
	August	First 8 mos.
Roads	2,496,979	34,215,381
Streets and alleys	2,458,849	20,055,700
Airports	335,887	12,563,655
Totals	5,291,715	66,834,736

Power station planned to serve new cement plant

ARKANSAS LOUISIANA GAS CO., Shreveport, La., will erect a power station next to a cement plant its subsidiary, Arkansas Cement Corp., is building at Foreman, Ark. Ed Henderson, vice president of both firms, said that the power plant will have a planned generating capacity of just under 8,000 kw. and will cost about $1 million.

The power plant, at least initially, will be able to furnish electricity for the cement plant.

ARBA executive tells impact of highway program

A TREMENDOUS IMPACT WILL BE FELT by our national economy with the gain in momentum of the Federal-Aid Highway Program, said Major General Louis W. Prentiss, U. S. Army (Ret.), executive vice president of the American Road Builders' Association, in an address before The Economic Club of Southwestern Michigan, Saint Joseph, Mich., October 10.

Preliminary work is moving rapidly, he said, and by next summer "dirt will be flying on these projects all across the country." Excerpts follow:

"What we're actually preparing to do is invest about $7 billion per year in new roads and in improving old ones. Many of them will be freeways. The Federal Government will be putting in about $3 billion and the States and local subdivisions of government about $4 billion per year.

"Federal funds invested in the construction of primary, secondary, urban and 'Public Domain' roads run a little over $900 million per year. The remaining $2 billion represents the Federal Government's 90 percent contribution for interstate roads.

"The job is already well begun. The Federal Government has made available over $4.8 billion and over $2.7 billion of this is in the 'pipeline', that is, the funds have been earmarked for specific State projects. Rights-of-way are being acquired at hundreds of points along the selected routes; highway departments are busily doing the necessary advance engineering; plans for bridges and interchanges are being put down on paper; and construction contracts are being advertised or awarded nearly every day. Approximately $1.1 billion in Federal funds (to which is added 10 percent State money) is right now involved in contracts advertised, let, or in work actually under way.

"The building program has not, of course, achieved a really high momentum as yet. The average complex interstate project requires a 'lead time' of 21 months from the time it is conceived until it is put under contract; it will then take an average of 24 months to finish the actual work and open the road to traffic as a completed facility. Therefore, we must think in terms of nearly four years as the life of an average interstate road project.

"To take a look at the probable economic impact of this entire amazing national roadbuilding program, we can begin by examining some of the basic construction requirements. These are rough estimates, of course, but it is expected that between now and 1972 the entire program will utilize 50 million tons of steel, 1.5 billion barrels of cement, 130 million tons of bituminous material, 10 billion tons of aggregate, 13 billion gallons of petroleum products, 2 billion pounds of explosives, 75 million gallons of paint and 12 million traffic signs. And, of course, there will be a big market for such varied items as aluminum, seeds, fertilizers, chemicals, engineering and surveying tools, electronic digital computers, photographic supplies, light bulbs, even some aircraft and many, many other products. Strictly in the line of heavy construction equipment, manufacturers are anticipating a rise in sales of 150 percent or more when the maximum demand is reached. Manufacturers of highway equipment have recently invested $200 million in new plants and assembly lines.

"Work on an ascending scale will be afforded the nation's 6,000 highway contractors, who are currently operating, as an industry, at little more than 50 percent capacity. Demand will increase for services of consulting engineer firms and naturally, increased business will fall to banks, financing companies and bonding and surety houses.

"Experience has proven that these super-highways generate new residential and industrial growth adjacent to their routes and that property values climb once the highways are in use. This happens without any lasting adverse effect on existing downtown business centers and industries now situated in the cities.

"Before closing I want to make two brief comments.

1. The highway program is not bogging down. The prerequisites to construction—land acquisition and engineering—have gone forward at an unprecedented rate. Net contract construction this year will exceed any previous year.

2. Municipal planners are awakening to the importance and significance of this highway program to the future economic development of the country. They want the band wagon to stop so that they can climb on it."

(Continued on page 71)

JUST OUT!

All-new '58

DODGE *PowerGiants*

4-WAY LEADERS OF THE LOW-PRICED 3

Now—for the first time in truck history—one make leads the low-priced three *all four ways!* And that make is DODGE—all new for 1958!

From the future comes Dodge styling — handsome, sweeping, prestige-winning lines, richly trimmed in sparkling chrome.

From 40 years of truck experience comes remarkable engineering advances . . . outstanding performance, load capacities and economy.

See these great new trucks soon. And be *sure* to get your Dodge dealer's special 40th-anniversary deal before you buy any other make!

1 **FIRST IN PAYLOAD!** Advanced construction gives extra strength *without* extra weight, lets you haul up to $\frac{1}{3}$ more, cut down on trips.

2 **FIRST IN POWER!** New 204- to 234-hp. *Power Giant* V-8's! Extra power cuts trip time, lets you pass more safely, reduces engine strain.

3 **FIRST IN ECONOMY!** Most advanced of all V-8 truck engines. Exclusive Power-Dome combustion increases gas mileage, cuts upkeep costs.

4 **FIRST IN STYLING!** All-new design! Deluxe chrome grille and trim . . . modern dual headlights . . . future-inspired lines . . . smart new colors.

TURN PAGE FOR FULL-LINE STORY

There's a

'58 DODGE PowerGiant

for every job . . . for every business . . . for every pocketbook

Low-tonnage models

Pick-up
model 100

Town Panel
model 100

Town Wagon
model 100

Forward-Control
model P300

Medium-tonnage models

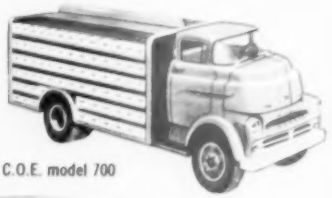
Model 400
Van Body

Model 500—Stake

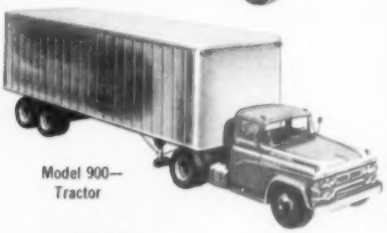
Four-Wheel Drive
W500
Chassis

Model 600
Tractor

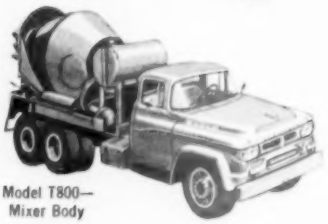
Heavy-duty models



C.O.E. model 700



Model 900—
Tractor



Model T800—
Mixer Body

Model T900—
Dump Body

CONDENSED SPECIFICATIONS

CONVENTIONAL MODELS

G.V.W. Range
4,250 lbs. to 9,000 lbs.
Engines
120-hp. 6-cylinder
204-hp. V-8

4-WHEEL-DRIVE MODELS

G.V.W. Range
5,100 lbs. to 10,000 lbs.
Engines
113- 120- 125-hp. 6-cyl.
204-hp. V-8
204-hp. V-8 (Heavy-Duty)

FORWARD-CONTROL MODELS

G.V.W. Range
6,000 lbs. to 9,000 lbs.
Engines
120-hp. 6-cylinder
204-hp. V-8

CONVENTIONAL MODELS

G.V.W. Range—11,000 lbs. to 22,000 lbs.
Engines—125- 130- 141-hp. 6-cyl.
204- (H.D.) 207-hp. V-8's

C.O.E. MODELS

G.V.W. Range—15,000 lbs. to 22,000 lbs.
Engines—204- (H.D.) 207- 218-hp. V-8's

4-WHEEL-DRIVE MODELS

G.V.W. Range—15,000 lbs. to 20,000 lbs.
Engines—130-hp. 6-cylinder
204- (H.D.) 207-hp. V-8's

SCHOOL BUS MODELS

G.V.W. Range—10,500 lbs. to 22,000 lbs.
Engines—125- 130- 141-hp. 6-cyls.
204- (H.D.) 207-hp. V-8's

FORWARD-CONTROL MODELS

G.V.W. Range—7,500 lbs. to 15,000 lbs.
Engines—120-hp. 6-cylinder
204-hp. V-8

CONVENTIONAL MODELS

G.V.W. Range
18,500 lbs. to 30,000 lbs.
Engines
218- 224- 234-hp. V-8's

C.O.E. MODELS

G.V.W. Range
18,500 lbs. to 25,000 lbs.
Engines
218-hp. V-8

TANDEM MODELS

G.V.W. Range
26,000 lbs. to 46,000 lbs.
Engines
218- 224- 234-hp. V-8's

SCHOOL BUS MODELS

G.V.W. Range
17,500 to 23,000 lbs.
Engines
218-hp. V-8

INDUSTRY NEWS

(Continued from page 68)

Vulcan Materials effects another multifirm merger

VULCAN MATERIALS CO., Birmingham, Ala., which last January was formed by the merger of Birmingham Slag Co. and Vulcan Detinning Co., has announced another merger which will bring the over-all net worth of the combined organizations to approximately $65 million.

Approved by Vulcan's directors are the acquisition of Union Chemical and Materials Corp., Pittsburgh, Pa., Lambert Brothers, Inc., Knoxville, Tenn., Ralph E. Mills Co., Frankfort, Ky., Brooks Sand and Gravel Co., Kingsport, Tenn., Wesco Paving Co., Chattanooga, Tenn., and a number of other companies affiliated with them.

The latest mergers are part of Vulcan Materials Co.'s program of expansion to gear itself to the rapidly developing Federal highway construction program. According to Charles W. Ireland, Vulcan president, bringing these companies together under one banner effects an important industrial step ahead for the South. Vulcan Materials already is a large supplier of roadbuilding materials, slag, stone, prestressed concrete, gravel, pipe and pipe lining, steel scrap and tin.

Minneapolis studies lime reclamation plan

WALTER L. HALLADAY, Minneapolis, Minn., city works engineer, has proposed establishment of a cooperative research project with the University of Minnesota into the reclamation of lime from the city's water softening sludge.

The city buys $220,000 worth of lime each year for softening its water supply. After use, the lime sludge is deposited in beds which are now filling up. The research project contemplates that the sludge would be burned. The carbon dioxide given off would be captured and used in the water purification process, with the remaining lime reused for softening.

Mr. Halladay said the cost of construction of a reclamation plant would be about $1 million; he estimated the savings each year at $185,000.

New stone quarry

BORIN AGGREGATES, Division of Borin Transit Mix Co., has opened a new quarry on Route No. 1, Monroe County, Maybee, Mich. Main office of the firm is at 14210 W. Chicago St., Detroit, Mich.

New shovel moves limestone for Medusa cement plant

NEWEST ADDITION TO THE FLEET of Manitowoc shovels at Medusa Portland Cement Co.'s Dixon, Ill., plant is this 2½-cu. yd. Model 3500 shovel which is used to load limestone. The shovel averages 100 20-ton truckloads in an 8-hr. day. The new unit is the fourth Manitowoc shovel at the plant. A 1¼-cu. yd. unit excavates clay, and two older models are working on construction of a new plant.

To produce aggregate

FLORIDA LIGHTWEIGHT PRODUCTS CO., a newly formed organization headed by W. R. Gooch, Lake Wales, as president, will build a $250,000 plant at Bartow, Fla., for production of lightweight aggregate from phosphate slimes. Construction will start early next year on the plant, with estimated annual production of 80,000 tons.

Seven years of research and pilot plant operation will be climaxed by construction of the plant. The late S. D. Gooch, Sr., helped develop the process which will be used. His sons, W. R. and S. D. Gooch, Jr., have continued the project. Associated with them are a number of Florida men.

W. M. Palmer, Jr. and J. H. Williams of Ocala are vice presidents; S. D. Gooch, Jr., Lake Wales, is secretary treasurer. Other stockholders are J. K. Stuart and W. H. Stuart, Bartow; W. M. Palmer, Sr., Clarence Camp, H and L. B. Lovett, Ocala and T. S. Baker, Jacksonville.

Ideal Cement Co. enters western Washington market

IDEAL CEMENT CO., Denver, Colo., is expanding its operations to include the western Washington market by acquiring Northwestern Portland Cement Co., Seattle. An agreement was authorized under which Ideal exchanges 38,756 shares of its capital stock for the Seattle firm. The plant of Northwestern is rated at 600,000 bbl. annual capacity. A program under consideration could increase this by approximately 50 percent.

Cris Dobbins, president of Ideal Cement Co., in his quarterly report to the stockholders, reported that shipments during the month of July were the largest ever recorded in the history of the company. A dividend of 50 cents per share was declared payable September 30 to stockholders of record September 10.

The company's by-laws have been amended to eliminate the positions of chairman and vice chairman of the board of directors, the report also stated.

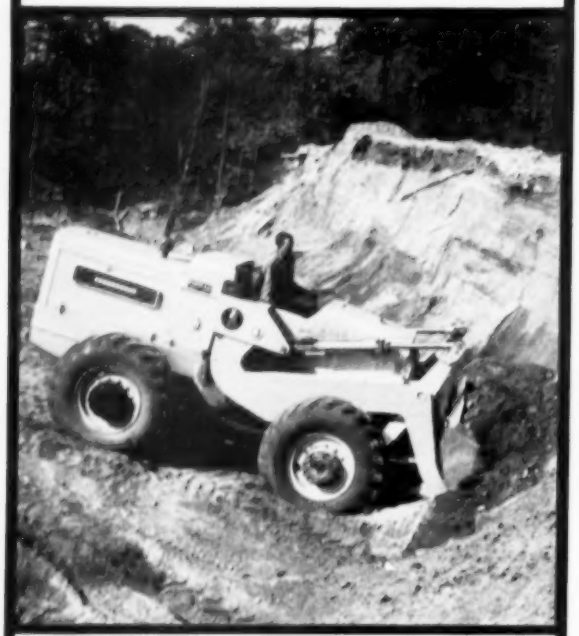
Gravel firm opens deposit, former tract rehabilitated

GOODWIN SAND & GRAVEL CO., Mt. Vernon, Ohio, opened a new plant on a 60-acre tract along the Kokosing River. Installation of equipment, all electrically operated, erection of a new office and scale house and construction of a new road to the plant took place last summer. Charles Smith will continue to serve as general manager.

Fred Goodwin, owner of the company, said that the gravel deposit at its former location on Newark road was exhausted after 11 years' operation. He said that the tract, which had been leased from James A. Beam, will be leveled off and used for residential purposes.

(Continued on page 73)

you DIG more



with BREAKOUT action

. . . and 40° bucket tip-back ***at ground level,*** both of which are productive features EXCLUSIVE with "PAYLOADER" tractor-shovels. They can not be found on any other rubber-tired loader.

To the user they mean that loads can be obtained easier and faster with less strain on the machine and bigger loads can be RETAINED in the bucket with the 40° tip-back AT GROUND LEVEL.

The FIRST four-wheel-drive tractor-shovels were introduced by The Frank G. Hough Company just ten years ago and many of them are still in daily use. Neither they, nor any of the numerous copies being offered are as productive as these new "PAYLOADER" models.

Every "PAYLOADER" distributor not only invites comparison but will be glad to PROVE in ACTUAL DEMONSTRATION all of the points of "PAYLOADER" superiority.

PAYLOADER
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.

11-8-1a

you CARRY more

with CUSHIONED loads

. . . using hydraulic load-shock absorber as standard equipment on all four-wheel-drive "PAYLOADER" models, another HOUGH EXCLUSIVE.

It doesn't matter what kind of an extra big load an operator was able to get to begin with if most of it is lost in SPILLAGE while traveling.

The "PAYLOADER" load-shock absorber does not completely eliminate spilling if you are operating over exceptionally rough surfaces . . . but it does minimize the loss and enable you to RETAIN more.

This is just one more reason why these new "PAYLOADER" tractor-shovels are more productive and why the combination of all the features which only Hough-designed units offer the user make "PAYLOADER" a better buy than any other equipment.

If you are not familiar with these new models your "PAYLOADER" distributor will be glad to demonstrate them to you.

PAYLOADER
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.

11-8-1b

you DELIVER more

with NO STOP for shifts

. . . which the "complete" power-shift transmission of these "PAYLOADER" units provides by saving time and effort.

There is no need to bring HOUGH tractor-shovels to a stop for a "range" shift. All shifts in both forward and reverse can be made "on the go".

When you travel over muddy or slippery terrain, "power-transfer" differentials automatically transfer more power to the wheels with the best footing. This is another STANDARD on all four-wheel-drive "PAYLOADER" tractor-shovels.

Therefore, if you GET more at the start, if you SPILL less during travel, if you can travel faster with NO STOPS for shifting and better traction . . . you are going to be able to ***deliver*** MORE . . . and, after all, that's what counts.

Only "PAYLOADER" tractor-shovels have all of these PRODUCTIVE features which spell more PROFITABLE operations for the user.

PAYLOADER®
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.

11-B-1c

you GET more

with GREATER choice

. . . of any and all kinds of financing.

What best fits your needs?

Do you want to purchase on a ***time payment*** plan? Your "PAYLOADER" distributor can offer you such a plan tailored to various periods to suit your needs.

Do you want a ***leasing plan**** with an ***option to purchase?*** He has a number of these which can be adapted to fit your requirements and preferences.

Do you want a straight ***leasing plan**** without a purchase option? He can provide "PAYLOADER" equipment for your operations on a straight leasing plan.*

Your distributor of "PAYLOADER" machines now has at his disposal the broadest and most complete set of financing plans and arrangements being offered.

He will be glad to discuss your needs for the finest equipment and offer you the greatest choice of terms. He will consider trade-ins.

He'll even take cash!

Consult him at once.

*(available in the continental U.S.A.)

PAYLOADER®
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.

11-B-1d

Enter 1019 on Reader Card

Amsco pump application file at: Louisville Sand & Gravel Company, Louisville, Kentucky

"With one of our 12" Amsco pumps, we dredge 200-250 tons of gravel per hour"

Quick Facts About Amsco Pumps

Whether your dredging operation is large or small, you can get an Amsco Dredge Pump to handle the job. Standard sizes range from 6" to 20" discharge openings. Larger sizes are also available. An Amsco pump engineer will be glad to discuss your requirements, or write for Bulletin 1052P, giving full information and specifications on the Amsco line.

Superintendent Wiley Morrisett has been with Louisville Sand & Gravel for 18 years. To the above statement, he adds:

"Amsco® pumps always give good service. Shells and impellers last about a year without rebuilding. And the bearings run approximately seven years in our service."

Louisville dredges a material consisting of 60% sand, 40% gravel. Lift varies from 20 to 60 feet. "We've operated one 12" Amsco pump on 70' of pipeline", says Mr. Morrisett. "They've got to be good, because they dredge the stuff that's lifeblood to our company."

Louisville uses two Amsco 12" pumps, working deposits on the Ohio River. They get consistently good service because Amsco pumps are specifically designed to take extra wear caused by the severe impact and abrasion of aggregates.

AMERICAN Brake Shoe COMPANY

AMSCO American Manganese Steel Division
Chicago Heights, Illinois

Enter 1045 on Reader Card

INDUSTRY NEWS

(Continued from page 71)

Expansion set at new Texas plant

TEXAS PORTLAND CEMENT CO., Orange, Texas, has embarked on a $3.8 million expansion program, according to Kent B. Diehl, president. The capacity will be boosted from 2,000 to 5,000 bbl. daily.

New facilities consist of a raw grinding mill, 11 x 400-ft. rotary kiln, a finishing mill, six additional silos and two blending tanks. Being constructed by Kennedy-Van Saun Manufacturing and Engineering Corp., Danville, Pa., they are expected to be ready for operation by July 1, 1958.

Consolidation to result in new St. Louis corporation

A NEW CORPORATION, to be known as Basic Materials Co., St. Louis, Mo., will result through the consolidation of Mississippi River Sand and Material Co., a publicly owned corporation; Concrete, Inc., and Goltermann Material Co., both privately owned ready-mix companies; and PFC Equipment Co., a truck-leasing firm.

As part of the plan, the proposed new company would obtain additional ready-mix facilities by purchasing the physical assets of Construction Materials Co. and County Concrete, Inc. Basic Materials Co. will have six ready-mix plants and materials yards in St. Louis and St. Louis County. It will have the sand dredging operation of Mississippi River Sand and Material, as well as the sand and gravel operation on the Meramec River at Pacific, Mo., of its subsidiary, Pacific Pebbles.

Under the merger plan, Basic Materials Co. would have an authorized capitalization of $3.5 million, consisting of 100,000 shares of preferred stock with $25 par value and 1,000,000 shares of common with $1 par value.

Expected to serve the company as president is Louis S. Goltermann, president of Goltermann Material Co. Board members are expected to be Joseph B. Gander, president of Mississippi River Sand and Material Co.; Raymond F. Powell, president of Concrete, Inc.; Robert C. Goltermann, secretary-treasurer of Goltermann Material; Clement J. Frein, secretary-treasurer of Concrete, Inc., and Gordon Scherck and Henry L. Ruppert, chairman of the board and vice president, respectively, of Scherck Richter Co., investment security firm, and directors of Mississippi River Sand and Material.

END

Coming Conventions

1958

January 19-23, 1958—
National Agricultural Limestone Institute, 12th Annual Convention, Hotel Statler, Washington, D.C.

February 10-13, 1958—
National Sand and Gravel Association, 42nd Annual Convention and Exposition, Conrad Hilton Hotel and Chicago Coliseum, Chicago, Ill.

February 10-14, 1958—
American Society for Testing Materials, Committee Week, Hotel Statler, St. Louis, Mo.

February 17-19, 1958—
National Crushed Stone Association, 41st Annual Convention, Conrad Hilton Hotel, Chicago, Ill.

March 5-6, 1958—
Iowa Agricultural Limestone Association, Inc., 13th Annual Convention, Savery Hotel, Des Moines, Iowa

June 22-27, 1958—
American Society for Testing Materials, 61st Annual Meeting and Exhibit, Hotel Statler, Boston, Mass.

EXTREMULTUS belts ABSORB SHOCK and VIBRATION

EXTREMULTUS is the revolutionary new power transmission belting that combines the shock absorbing properties of an elastic, incredibly strong core of polymer with the unexcelled friction surface of specially chrome tanned leather. In addition to absorbing shock and vibration, EXTREMULTUS will not stretch on fixed centers and runs at speeds over 10,000 feet per minute! Write today for descriptive catalog.

EXTREMULTUS, INC.
405 LEXINGTON AVE., NEW YORK N. Y.

Enter 1096 on Reader Card

You saw them first at the Road Show

Now the show is really on the road with big new Michigan Equipment!

375 hp moves 7 yard bladeful

Among the many big new Michigan Tractor Shovels, Scrapers, and Dozers now hard at work is this Model 380 Dozer. Photographed on a superhighway job in Michigan, the powerful rig moved more than 7 cubic yards of fill per pass. Power shift with 4 speeds forward and reverse greatly reduced normally-expected "deadhead" time. *Only from Michigan* could this contractor—or you—have a choice of 3 rubber-tire dozer sizes . . . Michigan now offers 375, 262 and 165 hp models.

27 yards without sideboards

On this Midwestern Super Highway, the Michigan Model 310 Tractor Scraper repeatedly hauled heaped loads of 27 pay yards. Its loading time averaged only 45 seconds. Material was sand and sandy clay. This Model Michigan features 375 hp and 4-speed power shift transmission with speeds up to 30 mph. It is the largest of three Michigan Scrapers now available . . . 10½, 18, 27 yards.

Power shift produces bonus yardage

Hauling 1,300 ft over rolling terrain typical of many jobs, this new 18-yard Michigan Tractor Scraper outproduced its also-new 18-yard competition, 198 to 146 pay yards per hour. Most of Michigan's 52-yard-per-hour advantage resulted from its power-shift 4-speed transmission *which enabled it to change gears without slowdown or loss of momentum* . . . a big advantage on this Detroit-area quarry stripping task with its varying, often steeply adverse haul grades.

Easy accessibility boosts work-time

At their open pit near Lost Hills, California, Holloway Gypsum Co. is using two Model 210 Michigans on work other rubber-tired scrapers could not perform successfully. All major components of these (and all other) Michigan Tractor Scrapers can be removed without disturbing adjacent parts . . . an important consideration on jobs like this where dust and desert heat hamper machines, and tight production schedules limit repair time.

Digs out, lifts, 4 yards per load

Powerful breakout, low-level tipback help new Michigan Model 275 Tractor Shovel consistently fill its 4 yard standard bucket for owner, Building Materials Inc, Torrington, Connecticut. Like all Michigans, the Model 275 features *all-Clark-built power train.* Components of this easily-accessible power train (and many other parts) are fully interchangeable between Tractor Shovels, Scrapers, and Dozers in the same series.

Two passes heap 14 yard truck

Records of this Florida quarry show load time for 14 yard trucks now *averages* 1½ minutes. Loading unit here is a big new Model 375 Michigan Tractor Shovel, standard SAE-rated bucket capacity, *6 cubic yards.* Despite its size—10'4" high, 25'8" long, 62,000 lbs total weight—operation is as simple as on the smaller Michigans; with power steer, power shift, fingertip hydraulic bucket controls standard. R. H. Wright & Son, Fort Lauderdale, replaced *two* 2½ yard draglines with the *one* mobile Michigan.

Before I buy any new equipment, I'd like data on your Michigan

☐ Tractor Shovels: ☐ 2¼ yard, ☐ 4 yard, ☐ 6 yard

☐ Tractor Dozers: ☐ 165 hp, ☐ 262 hp, ☐ 375 hp

☐ Tractor Scrapers: ☐ 10½ yard, ☐ 18 yard, ☐ 27 yard

Name _____ Title _____

Company _____

Address _____

Type of Work _____

MAIL TO

Michigan is a registered trade mark of

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY
Construction Machinery Division
2481 Pipestone Road
Benton Harbor 53, Michigan
In Canada: Canadian Clark, Ltd.,
St. Thomas, Ontario

HINTS AND HELPS

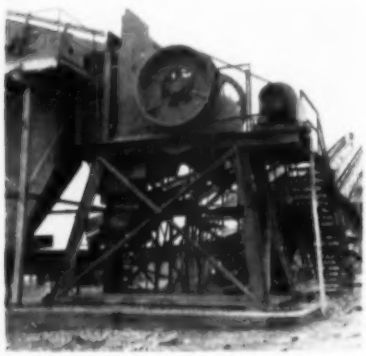
Profit-making ideas developed by operating men

Send Us YOUR Ideas

We would like to make this column better, and we can, with your help. In the past, we have depended upon our field editors almost exclusively for *Hint and Help* items. However, we feel that a wealth of material exists that only you can uncover. YOUR *Hint and Help* ideas, no matter how simple (in fact, the simpler the better) may interest other readers. For each idea accepted, you may receive either a cigarette lighter engraved with your name or $5.00. A photograph or rough drawing should accompany each item. Send ideas to:

Hint and Help Editor
ROCK PRODUCTS
79 West Monroe St.
Chicago 3, Ill.

Crusher above ground



IS IT PRACTICAL to mount a heavy crusher above ground in structural steel? This western sand and gravel producer did so and saved himself the cost of pits and foundations for this heavy crusher.

Since vibration is the big difficulty preventing more machinery from being mounted on structural steel, heavy sections were carefully braced and tied into a concrete pad. Proper design was the secret for success.

The structural supports made it possible to move the crusher with all its support to another location. A careful inspection showed that the steel was in good condition after many years of operation.

Plan for the future

A WESTERN PRODUCER built himself a truck dump hopper over his primary crusher of massive monolithic concrete construction. Workmen and visitors alike were puzzled and intrigued for a long time with the wide, deep notches cast into the top of the structure.

It developed that the designer and the management had the vision to foresee that rear-dump trucks would be superseded eventually by heavy-duty, bottom-dump haulage units. At that time the notches would be used to support heavy beams across the throat of the hopper, and the new trucks would dump directly into the hopper. Of course, ramps would be built at each end of the hopper with earth fill and compacted to support the weight of the heavier trucks.

Sky hook for elevator makes chain removal easier

IT SEEMS THAT WHEN THINGS go too smoothly, that's the time a bucket elevator drops the chain and buckets down into the boot of a hundred feet of casing.

Bucket elevator manufacturers provide clean-out panels to get the material out of the boot but they do not realize the need for something to hang the block and tackle from to pull out the chain from the top.

This western cement maker's engineers specified a structural steel support at the top of each elevator for a hoist. In addition, a backstop helps to hold the chain from dropping back while the hoist gets another grip on the line of chain and buckets.

Throw away overburden?

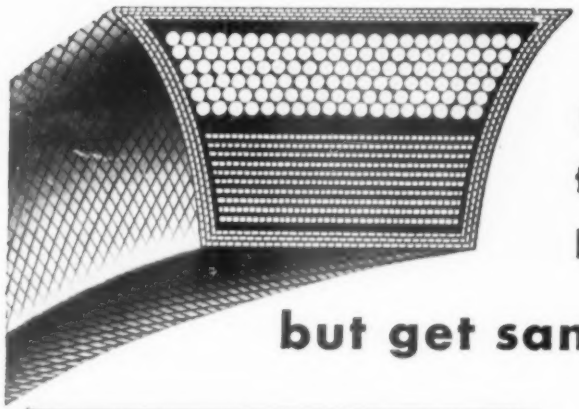
PRACTICALLY ALL operators in the rock products industries consider the removal and disposal of overburden to be an inevitable cost of opening up or extending a rock or aggregates deposit already in use.

However, one midwestern operator quickly discovered, to his amazement, that he was beseiged with bidders who would buy more topsoil than he could produce.

With the topsoil segregated from the clay subsoil, other contractors were more than willing to haul the clay to be used as "clean" fill, without charge.

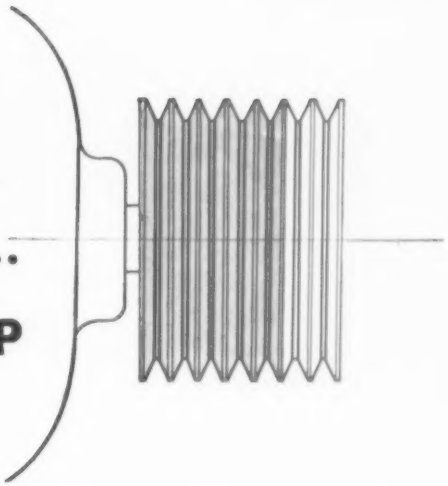
(Continued on page 82)

5 Gates Super Vulco Ropes do the work of 7 standard V-belts



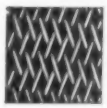
Use fewer belts...

but get same HP



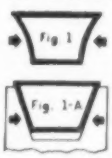
No other V-Belt has ALL these advantages

1. Flex-Weave Cover (U.S. Pat. 2519590)



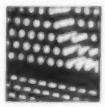
A Gates exclusive: provides greater flexibility with far less stress on fabric. Cover wears longer . . . increases belt life . . . more power available to driven machine.

2. Concave Sidewalls (U.S. Pat. 1813698)



Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt . . . far longer belt life.

3. Tough, resilient Tensile Cords



Super strong resilient tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . . reduce number of belts required . . . save weight and space.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure to weather.

Cut sheave width and weight . . . design your drive to benefit from the greater HP capacity of Gates Super Vulco Ropes.

5 Gates Super Vulco Ropes will do the work of 7 Standard V-Belts. A Super Vulco Rope Drive delivers more HP per dollar invested than any standard V-Belt drive.

Sheaves with fewer grooves cost less . . . weigh less . . . occupy less space. Your drive design is improved.

Helpful drive data is quickly available to you. Simply call your nearby Gates distributor for advice from a Gates V-Belt Specialist. Stocks carried in industrial centers throughout the world.

The Gates Rubber Company
Denver, Colorado

Gates Distributors are in the Yellow Pages

TPA 264

Gates — The Mark of *Specialized* Research

Gates Super VULCO ROPE Drives

Enter 1020 on Reader Card

Portable A-W plant producing base material for large state highway job near Los Banos, California.

AUSTIN-WESTERN Crushing Plant produces rock at low cost for Richards-Underdown Co., Fresno, Cal.

High output and low cost—that's the story on the Austin-Western 101-S Crushing Plant working for one of the biggest producers in the San Joaquin Valley. Despite its large capacity, it can be moved easily and fast from job to job.

In the operation shown above, feed material is scalped ahead of the crushing plant to remove fines and produce minus $1\frac{1}{4}$ inch material. Feed over the scalper goes to the primary crusher, which has a 1036 jaw. It then passes into the big 30 x 20 inch roll crusher, which turns out a $\frac{3}{4}$ inch plant-mix material. The plant has three conveyors, which deliver sand and road-base material in sizes of 1 inch and minus $\frac{3}{4}$ inch.

The plant is powered by a 62.5 kva generator, driven by a diesel engine. The individual motors operate the conveyors and the scalping screen through short-coupled V-belts—there are no idlers, clutches, etc., to cause mechanical loss. The crushing plant itself is direct-diesel-driven by a propeller shaft. A single convenient push button station controls the entire closed-circuit system.

There's a high-speed, profit-making Austin-Western Plant exactly right for your needs. Call on your nearest distributor for full information. Or write Construction Equipment Division, Baldwin-Lima-Hamilton Corp., Lima, Ohio.

COMPARE—AND YOU'LL WANT AN AUSTIN WESTERN CRUSHING PLANT

1. *Welded steel plate frame for high strength without weight of cast steel frame.*
2. *Machined steel toggle plate for absolute protection, instead of cast iron.*
3. *Inclined positive-throw-type vibrating screen.*
4. *All moving screen parts operate in rubber bushings that need no lubrication.*
5. *Dual rear wheels for added stability; fully enclosed brakes on rear tandem.*
6. *Oversize self-aligning spherical bearings in crusher.*
7. *Heat treated chrome vanadium steel shaft in crusher.*

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

AUSTIN-WESTERN
CRUSHING, SCREENING AND WASHING EQUIPMENT

BALDWIN BLH LIMA HAMILTON

BALDWIN-LIMA-HAMILTON
Construction Equipment Division — LIMA WORKS

OTHER DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation
Hamilton • Loewy Hydropress • Madsen • Pelton • Standard Steel Works

NEW 1958 CHEVROLET TRUCKS WITH NEW HUSTLE! NEW MUSCLE! NEW STYLE!

Just look at all they offer that's new and better . . . and you'll see why these new Chevies are the fleetest, sturdiest, handsomest dollar-savers yet! Meet Chevrolet for '58!

NEW MEDIUM-DUTY VIKINGS

Hardy Vikings roll in with nine brand-new models, offering new cab-to-rear-axle dimensions for improved semi-trailer, dump, stake and van-type operations. Options available boost GVW ratings all the way to 21,000 lbs. And you get traditional Chevrolet economy in the industry's most popular 6's and in V8's packing up to 175 h.p.

NEW HEAVY-DUTY SPARTANS

The robust Spartans make hauling history with the revolutionary 230-h.p. Workmaster V8 with Wedge-Head design. The combustion chambers are located in the cylinder block rather than in the cylinder head. Here's maximum power, less wear than ever. It's featured on 90 and 100 Series trucks as are sturdy cast-spoke wheels and an 18,000-lb. rear axle. Look over Task-Force 58 at your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

SEE THE LATEST EDITIONS OF THE "BIG WHEEL" IN TRUCKS—1958 CHEVROLET TASK•FORCE TRUCKS

Enter 1021 on Reader Card

Enter 1022 on Reader Card

HINTS AND HELPS

(Continued from page 78)

"Water break"

IF IT IS A LONG WAY BACK from the job to the change house, every drink of water is going to take your men away from the job just that long.

This midwestern producer solved the problem by putting a drinking fountain right in the middle of his plant. He was fortunate to have his high pressure water mains in a place where he could tap one only a few steps from the machinery operating stations. This was accomplished with a couple of lengths of pipe, a small valve and a drinking nozzle.

Belt care

THE BELTS OF BELT conveyors handle so much material for so long without attention or cost that many operators fail to realize that their belts need the same care and attention that they give to precision machinery.

One discerning midwest sand producer took the time to study and observe the action of his long belt conveyors hoping to discover ways of prolonging their life even more. Several belts seemed to run to the side of the idlers, rather than centrally, when under load. It was a long time before he realized that it was not enough to have the loading chute exactly in the middle of the belt beneath—the material itself must center on the belt.

Now his chutes have been located "off-center", but the material falls dead center onto the belts and the belts run straight and true under full load.

High wall drilling

HOW WOULD YOU DRILL holes for blasting at the top of a 30-ft. seam? Would you have done as the plant mechanics did for this midwestern silica producer who made up this jumbo drill and mounted it on the bucket of the shovel?

Since space was limited and the budget tight, they found that they were able to make a far more suitable rig than could be purchased complete. At the same time, they were able to avoid another machine in the cramped quarters. When the shovel is ready to load out blasted material, the jumbo is quickly unmounted and the bucket is ready for work without further delay.

Firefighting cart

FIREFIGHTERS AT A MIDWESTERN cement plant have their job made much easier. Auxiliary fire extinguishers have been mounted in this hand propelled, highly mobile cart. Each extinguisher has been clearly marked for each kind of fire, so that there will be no chance for confusion at the scene of the blaze.

Conveyor capacity

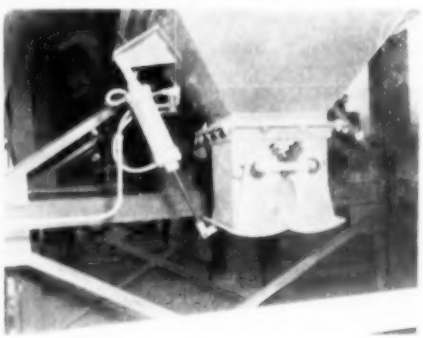
ONE OF THE PERENNIAL QUESTIONS of rock producers is "How steep can we make our belt conveyors?" Space is at a premium in many plants, and everyone is looking for ways to increase capacity.

The best answer has always been, "That depends on your material." Each material has a maximum angle at which it can be conveyed uphill efficiently, but in actual practice each belt conveyor has had to be flat enough to handle the worst material—dry, powdery sand or round, wet gravel.

A midwestern producer of washed gravel overcame this problem by installing new belts on his steep conveyors. Each belt has a molded rubber ridge in a chevron pattern across the width of the belt. These ridges provide enough friction to grip the material in spite of the lubricating effect of the water. The water is free to flow back along the edge of the belt, but the wet sand and gravel are now conveyed at a much greater capacity than ever before.

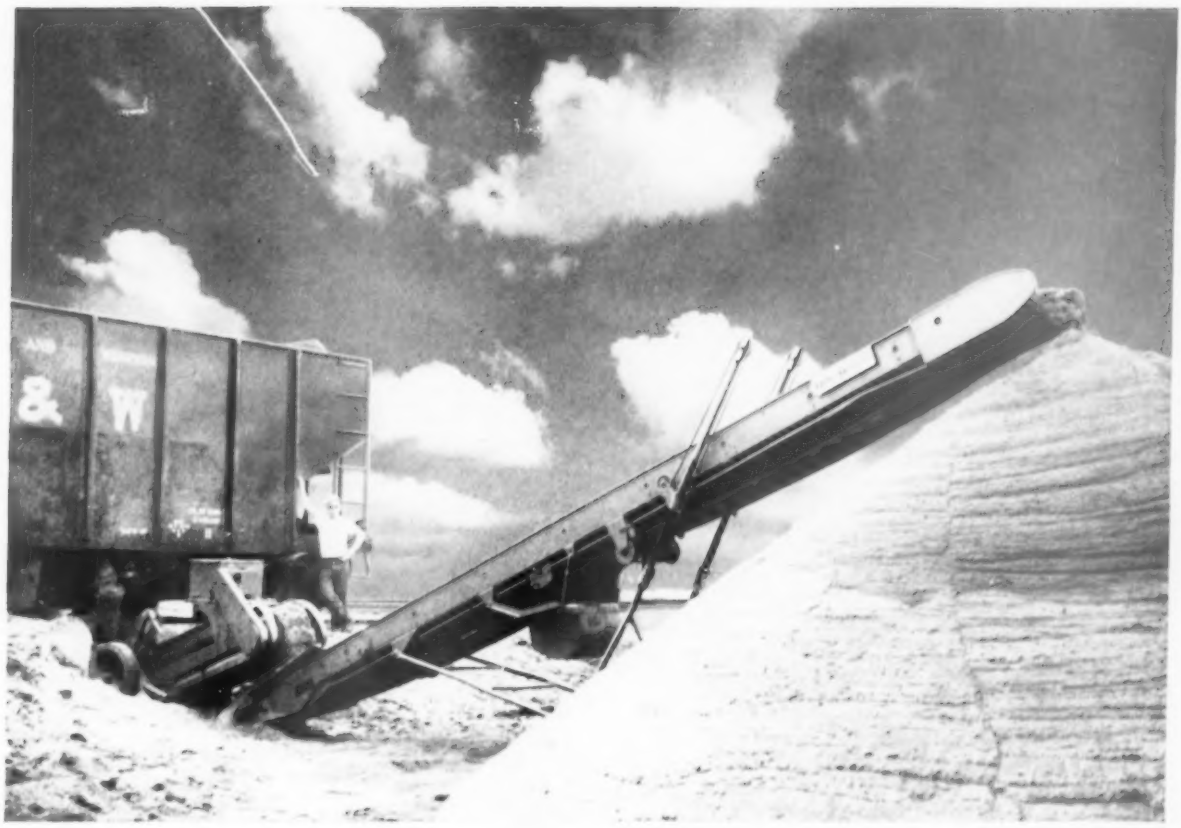
END

Self service saves time and money at loading bins



BY PROVIDING SELF SERVICE for his truck operators a western aggregates producer saved the time and expense of a man to do nothing but load trucks. He mounted push buttons at cab level to control air-operated gates on the shipping bins.

Whenever a truck driver needs 1 in. crushed gravel he presses the button "1C," and holds it until his truck is full. An air cylinder opens the gate and holds it while the driver holds the button, closing it when he releases it.



Ohio contracting firm, S. E. Johnson Co., reports:

"We unload the largest hopper cars in 45 minutes"

"Our Barber-Greene unloader and conveyor easily handle 800 tons a day with just intermittent operation. So far, we have moved over 85,000 tons of material and have had no maintenance expense to speak of."

This statement isn't a manufacturer's specification; it is a factual, unvarnished, report typical of the many comments on outstanding performance of Barber-Greene car-unloading equipment.

Wherever it's used, the combination of the 363 Portable Conveyor and the 358 Car Unloader provides a sure way to cut unloading costs and to release cranes and other, more expensive equipment for more efficient operation on other jobs. Whatever these Barber-Greenes handle—coal, sand, gravel or other bulk materials—they do the job virtually automatically as a one-man operation.

Both conveyor and unloader are mounted on pneumatic tires for easy maneuvering about the yard . . . for fast between-job towing at truck speeds.

B-G Unloader operates above or below the rails. Portable conveyor can be equipped with screens, power hoist and other accessory equipment. Capacity ranges to 150 t.p.h. Powered by gas or electricity.

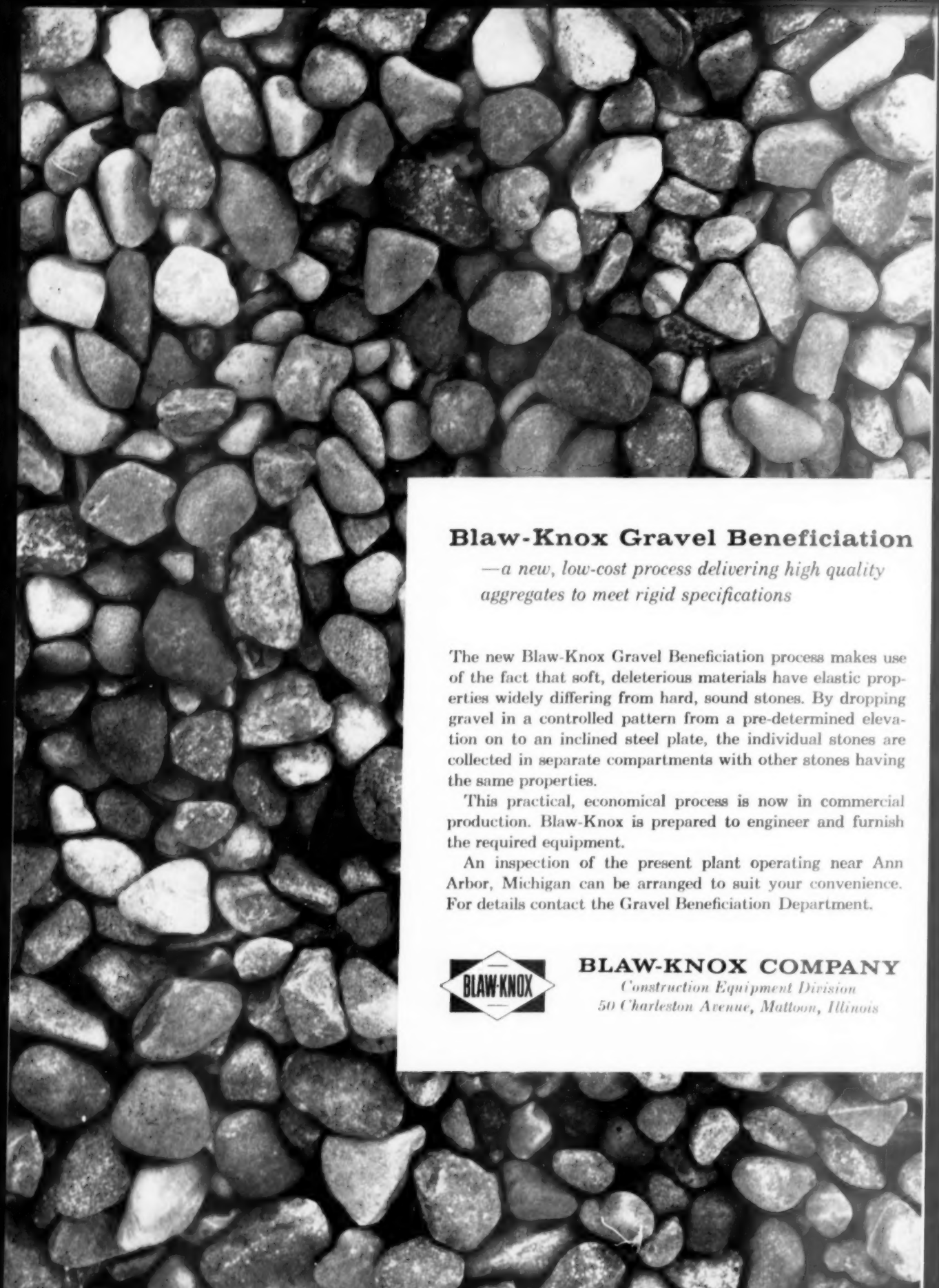
56-13 PO

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Enter 1149 on Reader Card



Blaw-Knox Gravel Beneficiation

—a new, low-cost process delivering high quality aggregates to meet rigid specifications

The new Blaw-Knox Gravel Beneficiation process makes use of the fact that soft, deleterious materials have elastic properties widely differing from hard, sound stones. By dropping gravel in a controlled pattern from a pre-determined elevation on to an inclined steel plate, the individual stones are collected in separate compartments with other stones having the same properties.

This practical, economical process is now in commercial production. Blaw-Knox is prepared to engineer and furnish the required equipment.

An inspection of the present plant operating near Ann Arbor, Michigan can be arranged to suit your convenience. For details contact the Gravel Beneficiation Department.

BLAW-KNOX

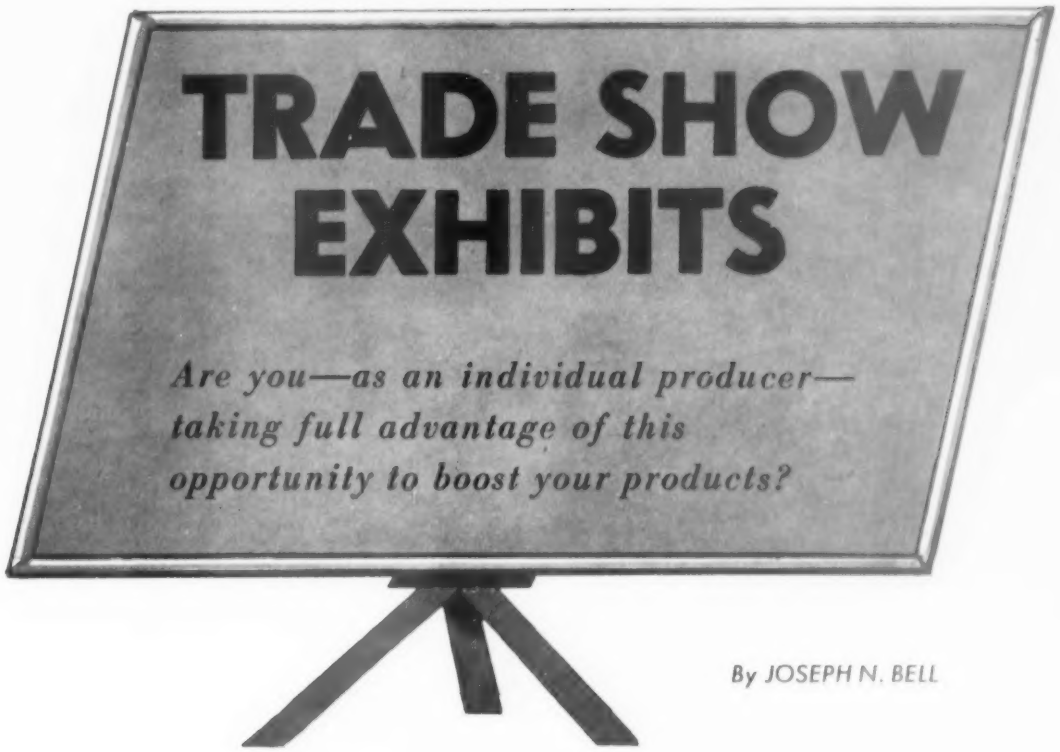
BLAW-KNOX COMPANY

Construction Equipment Division

50 Charleston Avenue, Mattoon, Illinois

Now's the time to plan for . . .

TRADE SHOW EXHIBITS



By JOSEPH N. BELL

ONE OF THE MOST MISUSED and—at the same time—most useful promotion tools available to rock products producers is the trade show or exhibit. The exhibit is especially useful because it is generally seen and inspected by a much higher percentage of in-the-market, ready-to-buy customers than any other advertising or promotion media. And it is frequently misused because there is a rather pronounced tendency among individual exhibitors to underestimate the importance of an exhibit. Result: It is often sloughed off by putting on public display something that was hastily conceived, sloppily built and lacking in a really persuasive idea. Such exhibits not only don't help the exhibitor but may actually hurt him.

In general, there are two broad classes of exhibits in which you—as individual producing companies—will be interested. Although the following suggestions will apply to both kinds, the distinction should nevertheless be made clear.

The best known and best publicized exhibits are the national trade shows—big, splashy, flashy and expensive. We're talking here about shows where the producer, not the manufacturer, exhibits. Relatively few individual producers either want or can afford to exhibit in such a show. Here is one instance where local, regional and national trade associations and other cooperatives really pay off; with their larger

Photo courtesy of Portland Cement Association

Well planned, this exhibit attracted attention with its dramatically lighted arrow pointing toward "an unlimited future" for concrete

Trade show exhibits

continued . . .

resources they can represent a group of producers or an entire industry in such a show.

The other type of exhibit is much more common —and much less appreciated. This includes the state, county, town and township fair, the local trade show or industrial exposition, the school fair, home show, Chamber of Commerce exhibit and many other similar local or regional functions of immense importance and sizable impact in your own community. Here the local exhibitor is the backbone of the show, and here you can find a good return on your investment in an imaginatively conceived and professionally executed exhibit.

In both classes of exhibits, participation can give the rock products producer an almost unique opportunity to display his wares or tell his story in surroundings where they may be seen and closely inspected by an audience already predisposed to interest. For this reason, rock products producers —whether they be actual or potential individual exhibitors or participants through their trade association—should be aware of the following fundamentals of sound exhibiting practice:

Plan your exhibit months ahead.

This may seem like a peculiar time to be talking about exhibits when the season is still several months away; yet the timing was deliberate. The reason: Now is the time to be thinking seriously about an exhibit for next spring. Unless a great deal of thought and planning go into it, unless you avoid a last minute rush in getting it constructed —chances are it won't do you a great deal of good.

Competition for exhibit attention is rugged these days. No longer will a set of black drapes, a few

Photo courtesy of National Slag Association

Plenty of literature, motion and attractive photographs are essential for a good display

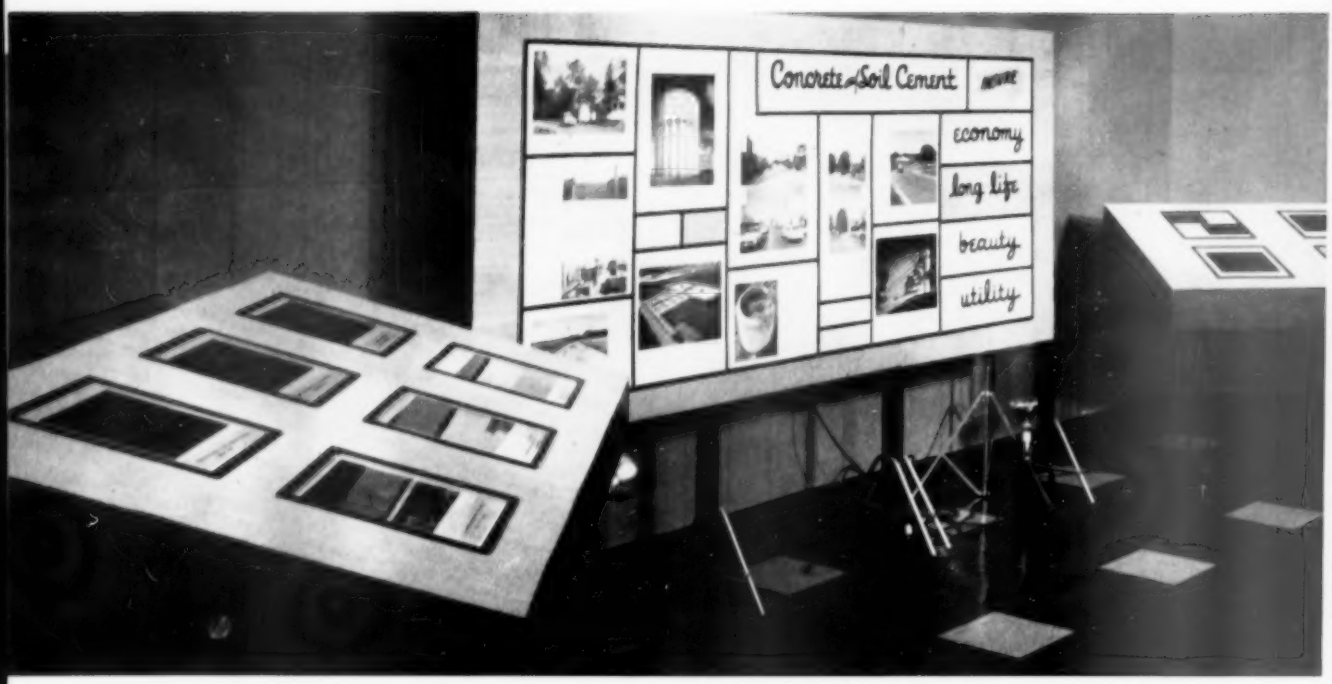
blurry blow-ups, some dog-eared literature and a bored attendant attract attention from passers-by. Chances are the people you want to draw have been exposed to a Powers model or an ingenious demonstration mechanism right next door. Thus the necessity for planning, thinking ahead, inventiveness and ingeniousness in conceiving your exhibit.

Also part of your advance planning is preselling your exhibit to the people you most want to visit it. Invitations or tickets can be offered in various ways—as stuffers in correspondence or billing, on envelope imprints or stickers or handed out by your salesmen and other employes. Your advertising and publicity for weeks ahead can call attention to your exhibit. And—most important of all—your participation in the show should be explained and emphasized to your employes so they can sell it outside. All these things add up to getting the most from your exhibit dollar by making adequate advance preparations, well ahead of time.

Budget a reasonable amount of money.

It's being penny-wise and pound-foolish to waste money on a poor or mediocre exhibit just to be in the show. Exhibits can do big business if they are considered on a par with the rest of your promotion program and budgeted accordingly. This doesn't necessarily mean plunging a potful of money. If you give yourself time to shop around and investigate the economies available in building exhibits, you can get a first class number for a reasonable investment.

Economical exhibits have come along with the growth of a fairly large group of organizations specializing in exhibit construction. In this highly competitive business, there is a constant stream of new developments for the exhibitor. For example, you can now buy: prefabricated displays—packaged in one compact unit—which can be erected and dismantled quickly and easily; modular display units made up of standard components from which a number of different exhibits can be built; and stock exhibits, mass produced, which can be individualized at a very low cost. Exhibit rental services, which make it possible for you to avoid the expense of buying or building an exhibit for a one-shot exposure, are also available.



Here's another idea: Middle panel utilizes regular photographs; desk-type panels contain color transparencies

Trade show exhibits

continued . . .

How much do professionally built exhibits cost? The only way to answer this question is to call a designer in your own community and get a price quotation from him on the special requirements of your own needs. You can spend almost any amount on an exhibit. For example, one packaging company lists 14 different panels—ranging in size from 12 x 36 in. to 48 x 84 in., and in price from $7.15 to $54.30—for use in displays.

Get professional help in designing your exhibit.

Like any other highly specialized business, the creation of a compelling exhibit can best be done by professionals who know their way around in this field. As noted above, there are a number of highly competent exhibit designers whose services are available to you. It will pay you in the long run to explain your sales or public relations problems to them and let them suggest the shape your exhibit should take to best cope with these problems.

Perk up your display with eye-catching gimmicks.

To put across your story in an exhibit, it is first necessary to attract visitors to your booth. Oftentimes the best way—and sometimes the only way—to accomplish this is with some sort of attention-getting gimmick. Here are a few simple suggestions:

—Growing things can be used easily and inexpensively to liven up your display;

—Dramatic effects can be obtained easily with tricky lighting;

—A water cooler will stop many visitors;

—Comfortable chairs catch foot-weary tourists;

—Motion—of any kind—grabs attention; animated films, moving parts, live demonstrations all do the trick;

—Give-aways get visitors who are invariably attracted to anything free;

—Contests are good, especially if they require the contestant to leave his name and address

Photo courtesy of Portland Cement Association

Photo courtesy of National Agricultural Limestone Institute

Big pictures; a short, snappy, easy-to-read message and lots of hand-out material get the point across here

at the booth, thereby enabling you to add him to your prospect list;

—Accentuate the dramatic qualities of photographs if you use them; they should be absolute top-quality pictures, large enough to be easily seen and dramatically lighted.

Appeal to the self-interest of the visitor.

Don't key your exhibit around your own interests but rather around those of the people who will be visiting your booth. The average visitor likely won't be interested in a sack of cement or sand and gravel samples or unrelated pictures of quarrying operations or cement manufacture. These things are primarily of interest to you. Much more meaningful to the visitor is how all of these things apply to him—what end results are produced by these products or how they directly affect his own business or living conditions. Seek out these points of visitor-interest and supply them in your exhibit.

Have literature and other promotion materials available in quantity at your exhibit.

Once you attract a prospect to your booth, there should be no shortage of selling material to provide him. Don't scare off prospects by inundating them with literature, but have what you need to follow up their interest. Plan and select this literature carefully; it performs an important job. And don't forget that a wide variety of literature is available—usually at very low cost—through the trade associations serving the rock products industries.

Have sufficient attendants on duty.

Exhibitors are painfully remiss when they go to a great deal of trouble and expense to attract visitors to an exhibit—only to find the booth empty or staffed with people who can't answer their questions. Attending an exhibit booth is no job for an

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Three-compartment ball mill is fed directly from hammermill

Huge drill rig prepares the 18-ft. seam of dolomite for blasting operation

Big equipment

Consolidated Cement Co.

A SINGLE BIG PIECE of equipment to do the job was the philosophy behind the design of this new cement plant. Each machine works at maximum efficiency during a scheduled time, leaving ample time for each shift to do inspection, lubrication and maintenance work. There is extra capacity in the equipment, but no idle capacity in any standby equipment.

This policy has been so successful at the Paulding, Ohio mill of the Consolidated Cement Corp. that their expansion program to double the capacity of the plant will consist of a duplicate, parallel system with a similar straight line flow of material.

The design of this 1¼-million bbl. capacity plant is the result of many years experience in the design and operation of cement plants. The cement mill is operated by 96 men in the quarry, mill and laboratory.

Dragline with 200-ft. boom easily reaches to bottom of cement-rock deposit

dominates new cement plant

gets the utmost from its standard equipment. uses no standbys

By ELWOOD MESCHTER

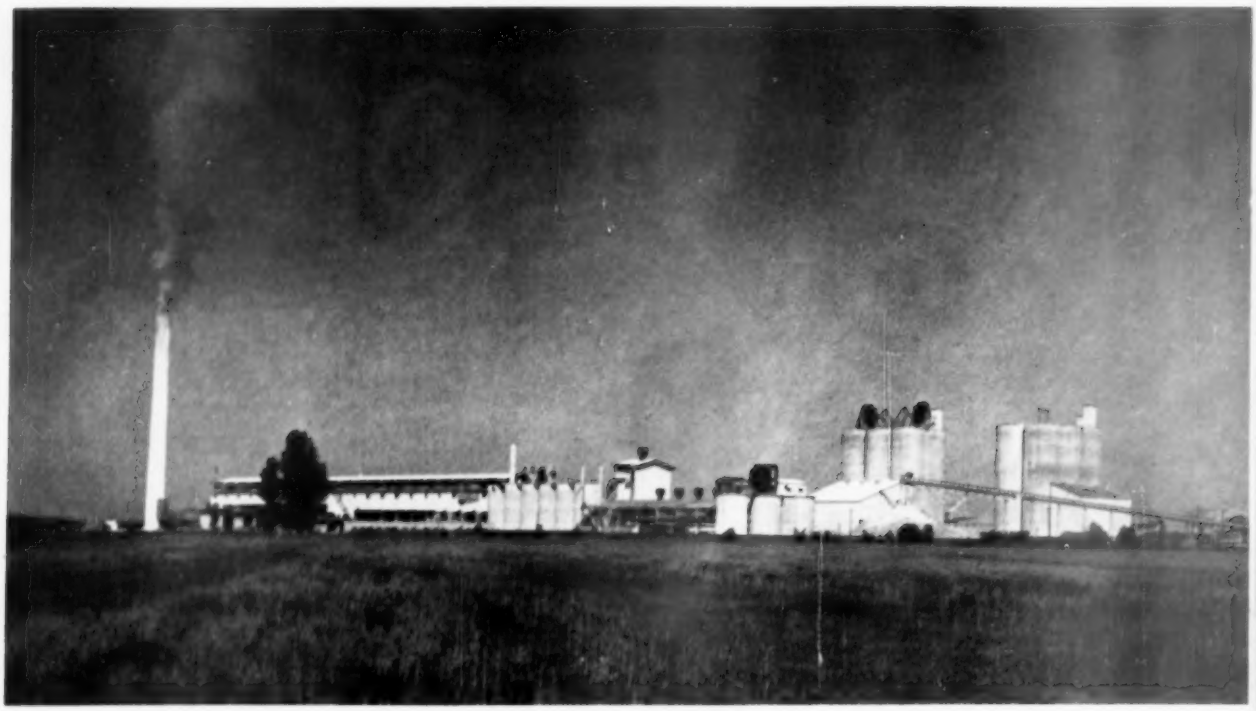
The use of big equipment starts right in the quarry where a dragline with a 200-ft. boom does all of the heavy work. It strips off about 40 ft. of topsoil and clay with a 10-cu. yd. bucket and piles it into spoil banks, exposing the top of a dolomite ledge.

A single large drill prepares the 18 ft. of this waste rock for blasting, penetrating only to the top of the cement rock below. The blasted dolomite is loaded out with the dragline using an 8-cu. yd. rock bucket, dumping directly into 34-ton twin diesel trucks. This is one of the few operations where a dragline does both stripping and loading of rock into trucks.

The sale of the high magnesia waste rock to the adjoining plant of France Stone Co. helps to pay the cost of removing 50 to 60 ft. of overburden to reach the 30-ft. seam of cement rock below the dolomite. The waste rock is hauled to a primary crusher hopper where it is crushed and diverted to a belt conveyor to carry it to the stone crushing and screening plant.

Another big drilling rig on the cement rock prepares it for blasting. This is a high-quality cement rock, but the physical characteristics vary widely from top to bottom of the ledge. The upper section is tough and "rubbery" in consistency—difficult to drill and blast. Blasting must be done with care to avoid shattering and powdering in the softer and more brittle rock in the lower part.

The big dragline standing on top of the dolomite reaches the blasted cement rock and loads it out into the big trucks which haul the waste rock. The trucks take the cement rock to the same big 36 x



New cement plant

continued . . .

60-in. roll crusher fed with a 60 in. wide manganese apron feeder that also handles the waste rock. A reversible belt conveyor under the crusher takes stone to the cement mill conveyor or to the stone plant conveyor.

A big new 72 x 60-in. hammermill has been ordered to process the greater volume of cement rock required by the new kiln being installed. A hammermill was selected to handle the tougher cement rock; the existing crusher will still process waste rock. The apron feeder will be reversible to feed the new crusher.

Two long belt conveyors carry the minus 10-in. cement rock about 1,000 ft. uphill to the surge pile ahead of the grinding mill. Each one of these conveyors is about 500-ft. centers, 36 in. wide, and travels about 500 fpm. When the new raw grinding mill is started, belt speeds will be adequate to provide the rock needed by the two big mills. The existing small surge pile can hold about 3,000 tons of rock, but the area can be doubled when the new mill needs the additional material.

A big, mobile clamshell crane on a four-axle body works a small storage of local clay, feeding it into a large wash mill. Since this is only a part time operation, a mobile crane was chosen for this work. Most of the time it is available to do other heavy lifting jobs in any part of the cement mill.

The wash mill discharges clay slip into one of a pair of air-agitated storage tanks. This clay washing and storage system has ample capacity to serve the new kiln now being installed.

A vibrating feeder under the surge pile of raw stone draws it out at a uniform rate and discharges it to a long belt conveyor. The conveyor discharges the cement rock to a 36 x 40-in. hammermill in the feed chute to the raw grinding mill. Here the minus 10-in. material is reduced to about 1 in. before it enters the ball mill.

This big ball mill is a $9\frac{1}{2}$ x 36 ft., three-compartment unit which reduces the feed to 90 percent minus 200 mesh. The feed to the mill is controlled by an electronic "electric ear." As the mill discharges finished material faster than new feed comes in, the noise level of the ball charge increases. The "ear" detects this change and in-

General view of the plant

This 400-ft. kiln has been so successful that a duplicate system is now being installed

Conveyor belt stretches for nearly 1,000 ft. uphill from primary crusher to surge pile

creases the feed by increasing the speed of the feeder under the surge pile of raw material. If the mill is gorged with tough rock, the noise is muffled. Then the sound device signals for reduced speed of the feeder until the charge has been digested and the noise level has returned to normal.

A battery of six slurry holding tanks ahead of the kiln holds the mixture of clay and ground material. When the mixture has been checked by the plant chemist, it is pumped to the $11\frac{1}{4}$ x 425-ft. coal-fired kiln. The kiln rotates about 1 rpm., and is driven with a 150-hp. electric motor.

The kiln discharges to a reciprocating grate cooler and a drag chain conveyor takes the cooled clinker to a bucket elevator. Another drag chain conveyor distributes it to one of three raw clinker silos. This, and all other drag chain conveyors are totally enclosed and dust tight.

The raw clinker silos are part of a group of six big silos. Another two of the group hold the slack coal brought in by rail and elevated to the distributing conveyor. The gypsum to be added in the finish grinding mill is stored in one silo.

The new kiln will be the same size and will be fed from a parallel and duplicate set of slurry holding tanks and will discharge to a similar set of clinker silos.

Vibrating feeders take coal out of the bottom of the coal silos and drop it to chain conveyors which

Please turn to page 122

Rampaging river aids gravel plant

Floods roll in leave deposits

GIFTS FROM A RIVER are helping to make a new sand and gravel plant a success. A thriving new business, the Windsor Sand & Gravel Co., Windsor, Calif., does most of its excavation under water and often finds sections it has worked out refilled by the Russian River's frequent floods. And since the stream has thoughtfully graded the material in deposits and washed off the clay beforehand, practically all processing can be done from a single screening tower.

With only a couple of men, the plant is turning out five kinds of aggregate. These include concrete aggregate with a top size of $1\frac{1}{2}$ in., crushed screenings, road base, plant mix for asphaltic concrete and surfacing material. A control room, rubber-mounted to reduce vibration, stands above the concrete and steel plant finished only last April. Office and scales have been built on an elevated dirt ramp to avoid inundation from flood waters.

The firm utilizes its nature-given advantages to the utmost with highly efficient new machinery. A high-capacity dragline brings up the raw aggregate and loads a fleet of five bottom dumpers, which pile it alongside the truck hopper at the plant to drain. A bulldozer then pushes the gravel into the truck hopper or into a larger stockpile, accomplishing a measure of blending coarse loads with finer ones.

A double-duty 36-in. belt from the main truck hopper is used in an unusual way. This belt delivers gravel to a splitter head box at the top of the plant, which sends one fraction to the wet side of the plant and the other to the dry. Plus $1\frac{1}{2}$-in. rock from either side is sent to the 36-in. Gyrasphere reduction crusher. The crushed material is then fed back to the same 36-in. belt that conveys the pit-run gravel and carried again to the splitter box, where it is sent to the dry side.

Using a single conveyor here instead of the conventional two has saved the firm both space and money, and it puts the crushed gravel in closed circuit with its screen and crusher. Crushed material can also be diverted to a steel load-out bin, and, in the near future, a vibrating screen will be placed over the bin for additional sizing.

There are two double-deck 4 x 16-ft. screens on the wet side, and a 3 x 12-ft. screen on the dry side that for the most part operates with a single deck. The two larger sizes of washed natural gravel are ground-stored, and smaller sizes are belt-conveyed to a steel load-out bin with a small vibrating screen over it.

Aggregates for plant mix surfacing and base rock can be stockpiled by a single stacker belt,

Please turn to page 122

Practically all of the processing can be done from this single screening tower because of aid given by river

on California plant and of washed and graded gravel

By WALTER B. LENHART

This crusher is the only one required

Taken from the river deposits, the scrubbed, quality aggregates are sent through the processing plant and stored in these piles

Preparing highways for 100-ton trucks requires a lot of heavy equipment

Side line booms into a full

Limestone mining was a side line—now Hanna Coal major use for the stone in building superhighways

Heavy rigs supported on 6-in. of stone

time job

Co. finds a for 100-ton trucks

WHAT STARTED OUT as a by-product activity has now become a profitable, diversified operation for Hanna Coal Co. Their original limestone plant was started to use the limestone overburden from open-cut mining to make heavy-duty haulage roads. Now the limestone is processed in two screening and crushing plants to make a wide range of top quality concrete aggregates, selected road-base materials and agricultural limestone.

When Hanna started stripping operations in eastern Ohio in 1940, 45 ft. of burden were removed with "big" 8-cu. yd. shovels to get at the 4½-ft. seam of prime Pittsburgh coal. The coal was hauled to the preparation plant in 15-ton trucks, which were considered large units in that day.

Now the overburden is taken off by the famous "Mountaineer" which can handle 90 ft. of burden with its 60-cu. yd. bucket at a rate of 7,000 tons an hour. The coal is hauled to the preparation plant in 400 hp. tractor-trailer units having a gross weight of 100 tons. A network of 50 miles of 60 ft. wide superhighways serves this coal preparation plant, the world's largest, with a capacity of 1,500 tph.

The roads from the several stripping shovels to the preparation plant are vital arteries which must keep the raw coal flowing to the preparation plant continuously. The ever-increasing size of the haulage rigs has called for better roads. In the 17 years since the first haulage road was built, Hanna engineers have come a long way to design roads suited to the heavy loads and the increasing capacity of the preparation plant which now processes nearly 2½ million tons of coal a year. The end of the growth of roadbuilding and plant expansion is not in sight as new markets call for more coal and as the coal pipeline goes into full operation.

Originally the roads for hauling coal were built up of run-of-stripping stone to a depth of 18 to 20 in. As loads became heavier and the trucks faster, this primitive road would not stand up. The solution to the problem of producing heavy-duty roads proved to be a careful buildup of the roadbed using stone which had been processed almost as carefully as the premium quality coal that Hanna produces.

In the words of Charles Secrest, general superintendent of the Georgetown mine and preparation plant, "We found that by selecting our subgrade material to achieve maxi-

After stone is scraped and brushed, it is drilled for blasting

Side line booms

continued . . .

mum density at optimum moisture we can operate our 100-ton rigs on 6 to 8 in. of stone."

Each mile of new road is now carefully designed for stability under this heavy service, and 12 miles of new road are being built this year. All main-haulage grades are kept between two and four percent to reduce the strain on the transmissions and provide efficient operation of the heavy tractors which will operate over the road. The density of the subgrades and fills is carefully checked, and if below standard, is corrected to the maximum specifications.

The rolling terrain of eastern Ohio calls for plenty of fill to maintain these grades—up to 60-ft. fills are constructed. The top 6 ft. of subgrade in each fill are compacted to the required density. This procedure has saved money and produced stable roads.

Each roadway is built up of successive compacted layers. The bottom is usually a layer of plus $1\frac{1}{4}$-in. stone, then a layer of $\frac{3}{8}$ x $\frac{3}{4}$ in. and then a choke of fines. The density of each layer is checked, and additional fines added if a more compact layer is needed. The surface is treated with calcium chloride, and this is done three or four times a year to reduce dust and to stabilize the surface.

The heavy, constant pounding given the roads calls for constant attention and maintenance. Large volumes of stone are used each year in maintenance work alone, and normal resurfacing calls for plenty of fines and calcium chloride.

The higher specifications for road stone just for their own heavy duty roads led Hanna to open up a new limestone quarry. This is the Ames plant, near Carrollton, Ohio, under the supervision of Robert Linard. Here a 4 to 9-ft. seam of high-quality limestone lies beneath an average overburden of about 30 ft. The limestone is mined in much the same way and with the same machinery as open-cut coal mining.

This new plant was designed to handle about 400 tph. of limestone, but actual production averages 4,000 tons of limestone products every 16 hours. A total of 70 men operate all phases of the plant on the two shifts.

While the output was intended to supplement

General view of processing plant

Stripping overburden from the limestone is no chore with this shovel—the first of the famous "Mountaineers"

the stone produced by the original Georgetown limestone plant, most of current production is going to build the new concrete locks on the Ohio River near Stratton, Ohio. When the new locks are completed, nearly one-half million tons of Ames limestone aggregates will have been used which passed the rigid control tests of the Corps of Engineers.

Quality control starts right at the stripping where a 10-cu. yd. electric shovel and a 2½-cu. yd. diesel shovel team up to remove the 15 to 60 ft. of top soil and overburden. The top of the limestone seam is scraped clean with a bulldozer and carefully swept with a tractor-mounted rotary brush to remove the last traces of dirt and clay.

Blasted stone is loaded out into trucks with a 4-cu. yd. shovel and hauled to the hopper. An apron feeder discharges stone to a double-deck vibrating screen which scalps off plus 6-in. stone for the twin impeller crusher. The plus ¾-in. stone is dropped to the belt as a cushion for the sharp, crushed material.

All of the minus ¾-in. material is immediately segregated and discarded since this contains soft stone as well as all the clay and top soil which may have worked its way down into the limestone deposit. In this way the quality of the harder stone is maintained. This waste even has some small value as fill and as surfacing for local roads.

The crushed stone is conveyed to a 5 x 12-ft. double-deck inclined vibrating screen. Plus 6-in. rock is taken off and conveyed back to the truck

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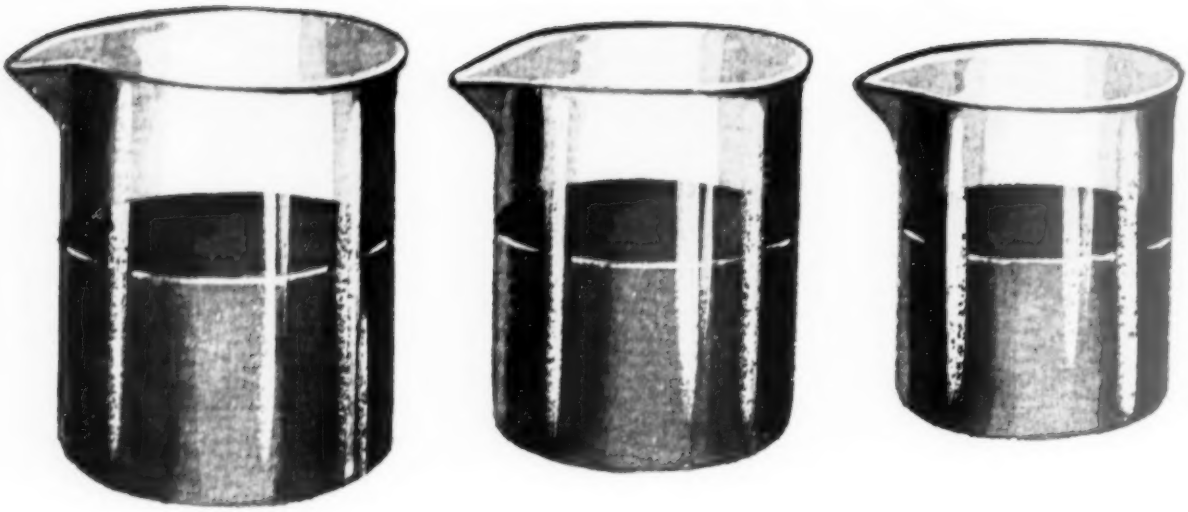
MAJOR EQUIPMENT IN USE AT AMES LIMESTONE QUARRY

Layout and design	
Crusher	
Screens	
Apron feeder	Iowa Manufacturing Co.
Conveyors	
Bins	
Structural supports	
Vibrating feeder	Syntron Co.
Fines pulverizer	Eagle Iron Works
Shovels (4)	Bucyrus Erie 225, 10 cu. yd.
	Manitowoc, 4 cu. yd.
	Lima 1201, 2½ cu. yd.
	Lorain 75, ¾ cu. yd.



PCA lab men seek better

This is the third in our series of articles on the Portland Cement Association's research and development laboratories

THE ACTIVITIES OF THE Manufacturing Process Department of the Portland Cement Association's Research and Development Laboratories, are devoted exclusively to the technology of cement-making. This department has the dual objectives of seeking better ways to make cement, and ways to make better cement. Specifically this involves improved control procedures all through the manufacturing process, to make it possible to produce cement of the highest quality and uniformity. Striving for better ways to make cement and ways to make better cement are not necessarily identical objectives, as a look at the three fields of inquiry being pursued will show.

These are: (a) The suitability, testing and excavation of raw materials; (b) The selection, efficiency and operation of equipment; (c) The most efficient use of power, fuel and other elements of operation.

Six methods of approach to the three fields of inquiry are being followed. These are:

(1) Through literature research. Here the primary objectives are to see what is known in any particular area and what has been found in this country and abroad.

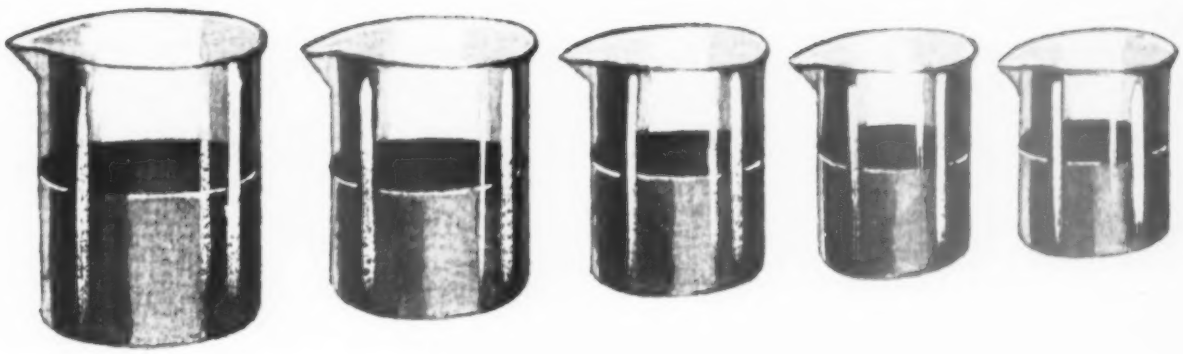
(2) Through laboratory experiments on new processes and theoretical studies on fundamental aspects of the manufacture of cement.

(3) Through pilot plant tests, trying out on a semi-industrial scale methods of process which have been tested under (2).

(4) By study of industrial scale trials involving operation or full-scale equipment in plants to test new methods or processes or make comparisons between processes.

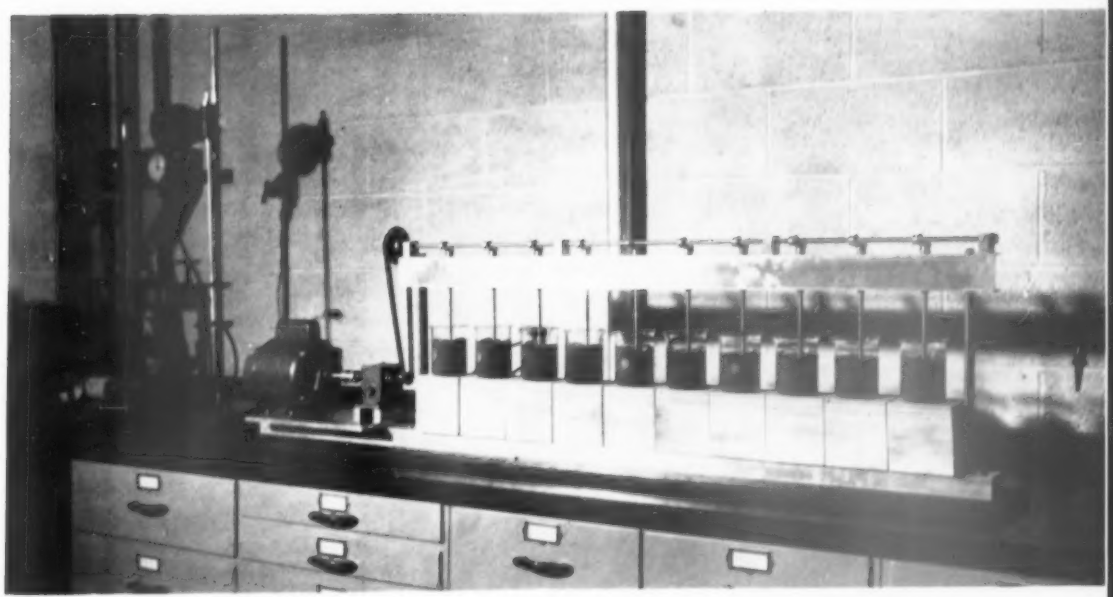
(5) By questionnaire surveys concerned with collecting statistical and operational data in specified fields from member companies. Because of its size and make up the Portland Cement Association has exceptional opportunity to assemble and analyze data from many cement plants.

(6) By plant studies, including collection of in-



By HUBERT C. PERSONS

way to make cement



Row of agitated slurry samples treated with thinning agents, simulating storing conditions in a cement plant

PCA research lab

continued . . .

Laboratory ball mill and screening arrangement for determination of grindability by the Bond method

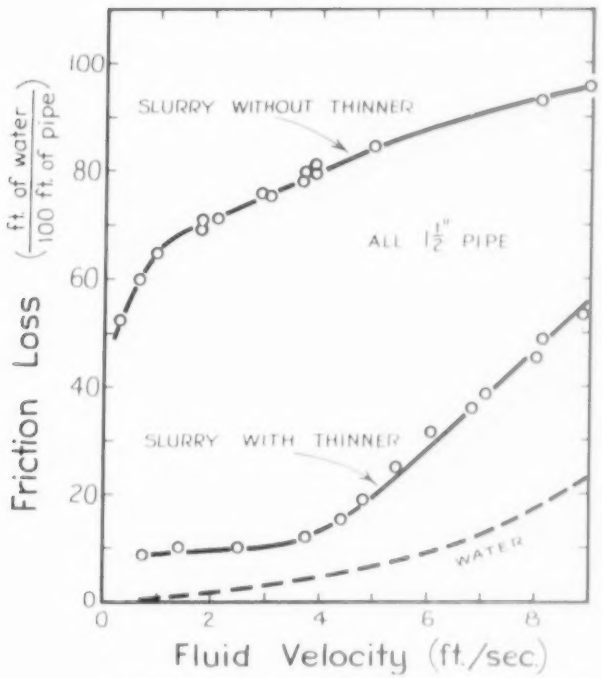
formation by actual visits to selected plants to glean data on equipment performance and operating methods. This is done through interviews with operators and personal observation by staff engineers of the department.

Inevitably many of the projects undertaken by the Manufacturing Process Department involve a combination of two or more of the methods of approach just described.

Naturally the assembly of information is not the whole purpose of these varied activities. The benefit derives from the use to which these data are put. There are two primary objectives. One is the issuance of reports to give member companies better operating knowledge. The other is to provide a clearinghouse for authentic information on the technology of cement-making for the use of members, engineering schools and the engineering profession generally.

As soon as field or laboratory work on a project is completed a report is made available to member companies.

Automatically fed pelletizer with equipment for testing abrasion resistance and strength for production of kiln feed pellets with the addition of binding agent



Graph of friction loss in slurry pipelines as developed during the Association's fundamental study of slurry flow characteristics

For example, a few years ago staff engineers conceived the idea that fuel could be saved and production increased if cement slurry could be produced with less water but still be of a pumpable consistency. It was believed that this could be accomplished through the use of certain surface-active agents. Literature research disclosed the fact that such a method was sometimes used in foreign countries. A laboratory study was then undertaken during which nearly 300 surface-active agents were evaluated as additives to slurry samples. Pilot plant tests were run during which the number of chemical agents was narrowed down to some 30 or 40. The results of the pilot plant tests were reported to the member companies and in many instances the process has been adopted. The process increases raw mill production, effects a higher kiln output and a considerable fuel economy. This is brought about because the slurry contains less water and a consequent higher content of solids without loss of fluidity.

Another case history, also dealing with slurry, developed from the growing recognition of the lack of scientific data on slurry pumps and conveyors. For many years operators of wet-process plants have been largely dependent on empirical information supplied by equipment manufacturers, as a guide in setting up slurry pumping systems. The Manufacturing Process Department conducted a fundamental study and laboratory investigation of slurry flow characteristics. Slurry samples representing a wide variety of raw materials were obtained from member company plants. These revealed new data on slurry flow and resulted in the development of entirely new methods of calculating requirements for slurry pumping installations. Information developed involved velocity, pipe diameter, pressure, viscosity, water content, particle size and use of slurry thinners. These data are expected to be of considerable value to operators of wet-process plants. The department has from time to time been issuing manuals on such special subjects as kiln burning, classifier operation, closed circuit grinding and related topics.

A typical example of the theoretical approach to a problem, (method No. 1), is the study and evaluation of several methods for determining grindability, carried on by the department. Of different methods studied, one has been selected by the association for its research work.

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Here are some intelligent, seldom realized tips on how you can save money by reducing waste in your office

Is money going down the drain in your office?

BY ERNEST W. FAIR

AN EFFICIENCY EXPERT we know says he has discovered one of the biggest wastes in the cost of doing business in the humble region of office supplies.

This may seem surprising, since the price of paper clips, typewriter ribbons and office forms is generally quite small—but these small costs, multiplied many times as they are in the course of a year, can mount into very sizeable figures. Here are some pointers that can save your dollars for better service elsewhere.

Careless storekeeping of office supplies is one of the biggest offenders. To avoid waste in this area, take these four steps:

- Protect supplies against deterioration. Inadequate protection from light, moisture and dirt can result in considerable loss, particularly with paper and forms. Provide strong protective units for these items—they will more than repay their expense in six months.
- Keep supplies arranged neatly. Disorderly arrangements promote damage and soiling, and encourage carelessness in office workers.
- Have an adequate purchasing arrangement. A big source of loss is the small expensive unit purchase made to bridge the gap between one major order and another when supplies run out.
- Make sure employes understand how to use supplies. Often erroneous use of the wrong material will cause expenses to skyrocket. A few simple instructions can help avoid these errors.

Inadequate control over supplies is another common cause of waste. Use these methods to tighten control:

- Place definite responsibilites for use of stocks and designate one employe to keep track of them.
- Dispense items in small packages—huge quantities encourage waste.
- Standardize as much as possible to permit larger purchases at smaller unit costs and to simplify storekeeping.

The following suggestions can help you save money in these specific areas:

Paper—Use lightweight paper for stationery. Provide half-size stationery for short letters and memos. Use the back of the letter for the carbon of the reply. (This saves on filing space, too.) Cut down on interoffice memos by using the phone, intercom or voice. Use both sides of the paper for bulletins and notices which have no permanent value. Run regular checks on duplicated material to cut down on unnecessary copies. Use obsolete forms for scratch pads.

Envelopes—Buy lightweight and smaller envelopes. Standardize on as few sizes as possible. Eliminate use in the office or for filing. For interoffice use leave them unsealed so they can be used again. Consolidate all mail going to one person into a single envelope.

Forms—Every three months check each form to justify its further use. Standardize and simplify to reduce paper waste. Make revisions of forms in heavy use only when absolutely necessary. Save print orders on forms so that a number can be run at one time. Use one-color printing on all forms; if color separation is worthwhile do it with colored paper. Cut down the use of printed-numbered forms as much as possible, as this is one of the most expensive extra printing features.

Filing Supplies—File folders can often be reused; reverse or relabel when possible. Keep dead material from the files. Use the backs of obsolete file cards. Limit binding prongs on file folders to use only where necessary to keep material in order.

Please turn to page 125

STOODY 1030

A new, low-cost hard-facing electrode that excels in *POSITION* WELDING!

Here's a new Stoody hard-facing rod especially made to fulfill several "musts"! *Stoody 1030 is unusual in its all-position weldability!* This means easier, faster hard-facing on much larger equipment...equipment which has to be hard-faced in the yard or on the job...equipment which can't be positioned to facilitate a down-hand welding setup!

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Literature on Stoody 1030 is available from your Stoody Dealer (check the Yellow Pages of your phone book) or write direct.

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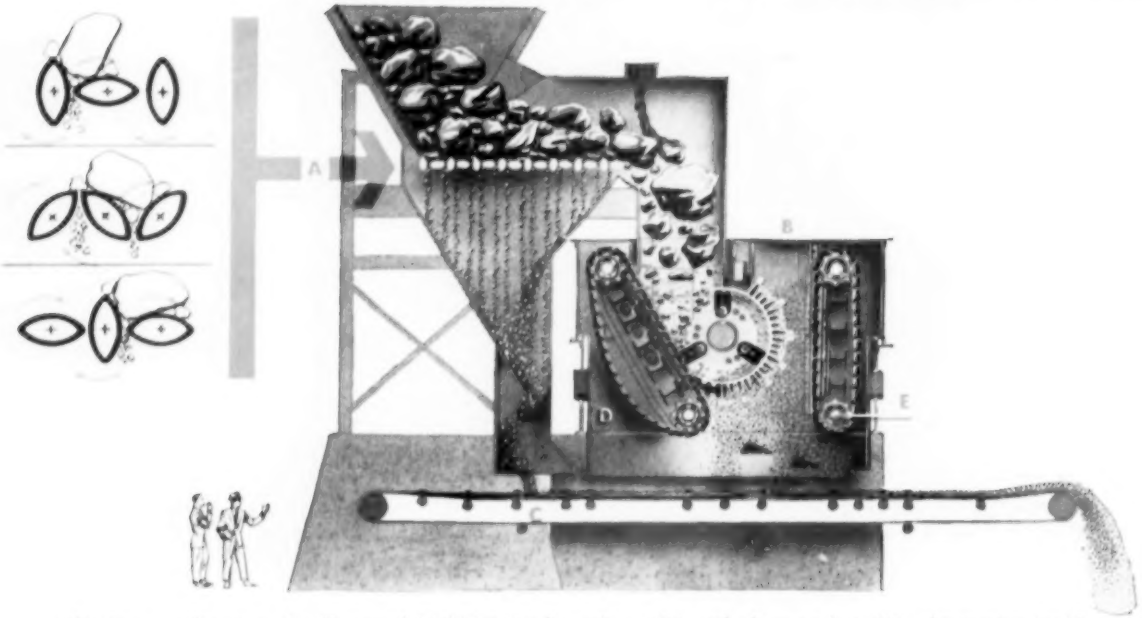

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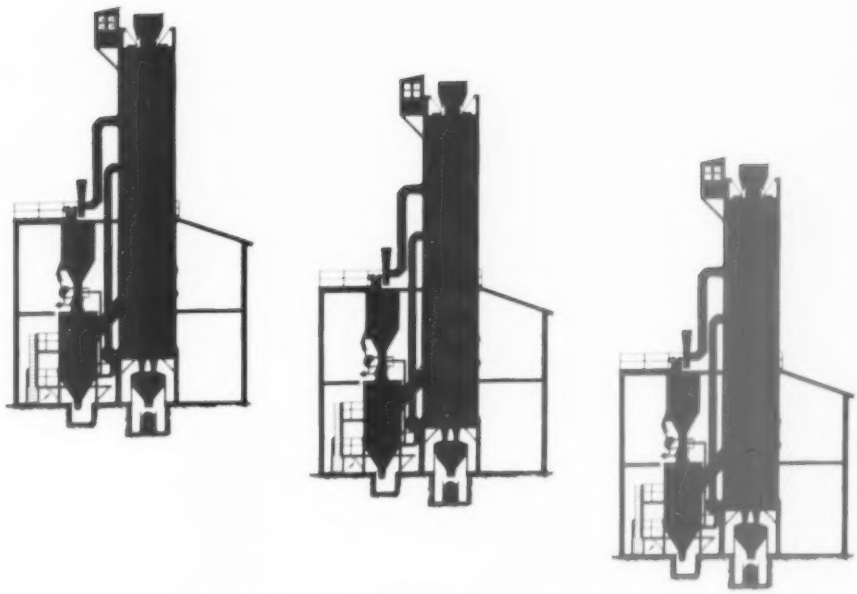

Azbe's unitized lime kiln

Here we continue the discussion of Azbe's method of thermal integration of chemical process and gas producer units

By VICTOR J. AZBE

THE PURPOSE OF THE GAS PRODUCER itself is production of combustible gases, rather than complete combustion of coal—generation of CO rather than CO_2 gas. Ordinarily, due to certain gas-producer reactions some of the carbon is burned to carbon dioxide. The gas is "good" with only five percent CO_2 content, or it may be "poor" with 12 percent CO_2. In the first, about 15 percent of the carbon was converted to CO_2 while the second was around 35 percent. Of the heat thus generated most is lost from the leads between producer and the kilns.

The proportions CO and CO_2 will appear in the general stream of gas coming from the producer of ordinary type, depend on reduction zone temperature, on active surface presented, and time of contact with the carbon that is allowed to the gaseous stream. Carbon monoxide will be highest at the highest bed temperatures and longest contact time. In some of the old type producers which were air blown without addition of H_2O or CO_2 the gas resulting was as high as 32 percent CO with only two percent CO_2, but all of the ashes were sintered to clinker.

In all present-day producers of other than Azbe design, there is always some of the carbon burned to CO_2. Some of the CO_2 generated in the oxidizing zone fails to be reduced to CO in the reducing zone, even when the highest bed temperatures are maintained through the minimum use of endothermic agent.

When use of an endothermic agent such as H_2O (steam) is high, producer bed temperature and clinkering is less, but then the gasification rate is lowest and CO_2 in producer gas is highest. When operation is controlled for higher bed temperatures through a lower saturation of the blast (a lesser use of the steam), gas generation capacity tends to increase. This tendency may be hampered by clinker formation, which blocks sections of the

*Part I was published in the September, 1957, issue of ROCK PRODUCTS, page 95

Please turn to page 110

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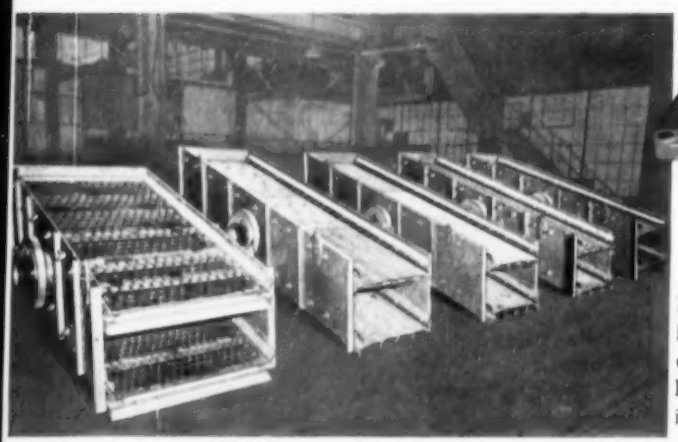

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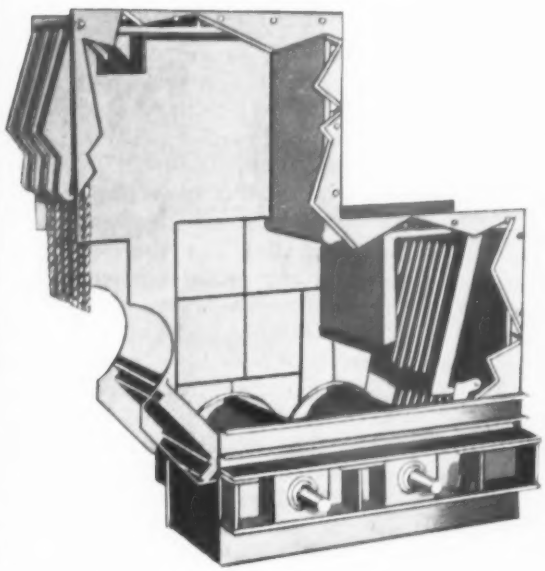

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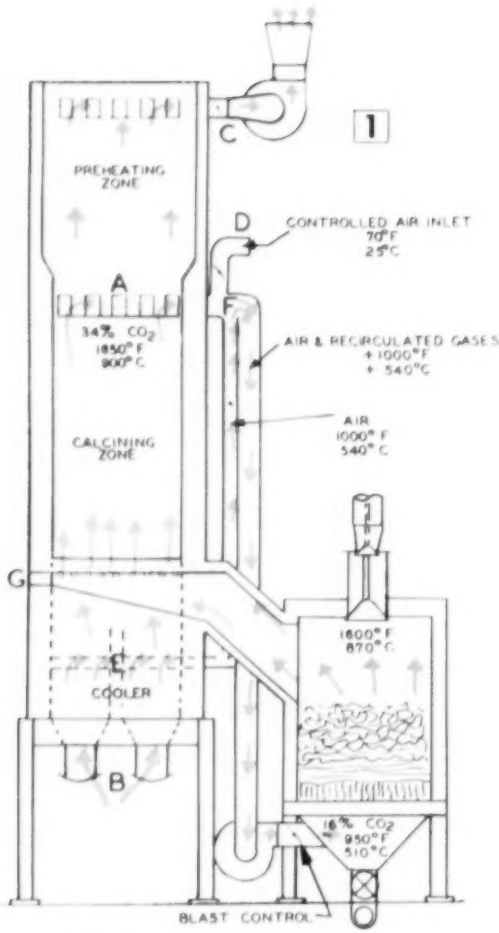

Azbe system integrates lime kiln and gas producer

Azbe's unitized lime kiln

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bed and can offset any initial gas generating gain to a point of actual reduction of capacity from the producer as a whole.

Most automatic gas producers, having a rather thin active fuel bed, are inclined to form blow holes. Then air combining with the combustible causes complete combustion of a portion of the gas. High gas temperatures, undesired cracking of hydrocarbons and formation of soot and smoke are the result. Often the smoke is blamed on the kiln but its origin may be in the gas producer itself.

It is supposed that steam used as an endothermic agent in gas producers dissociates and the resulting hydrogen contributes to the heating value of the gas. However on its burning it reverts to steam so there is no overall gain. The steam acts only as a foreign carrier of latent heat from producer into the kiln. It acts as a cooling medium for the producer bed, but it does not contribute anything otherwise. Since it is a foreign agent it harms operation. It increases the mass of escaping gases from the kiln and acts as a high specific heat carrier of 1,650 deg. F. heat from the calcining zone of the kiln.

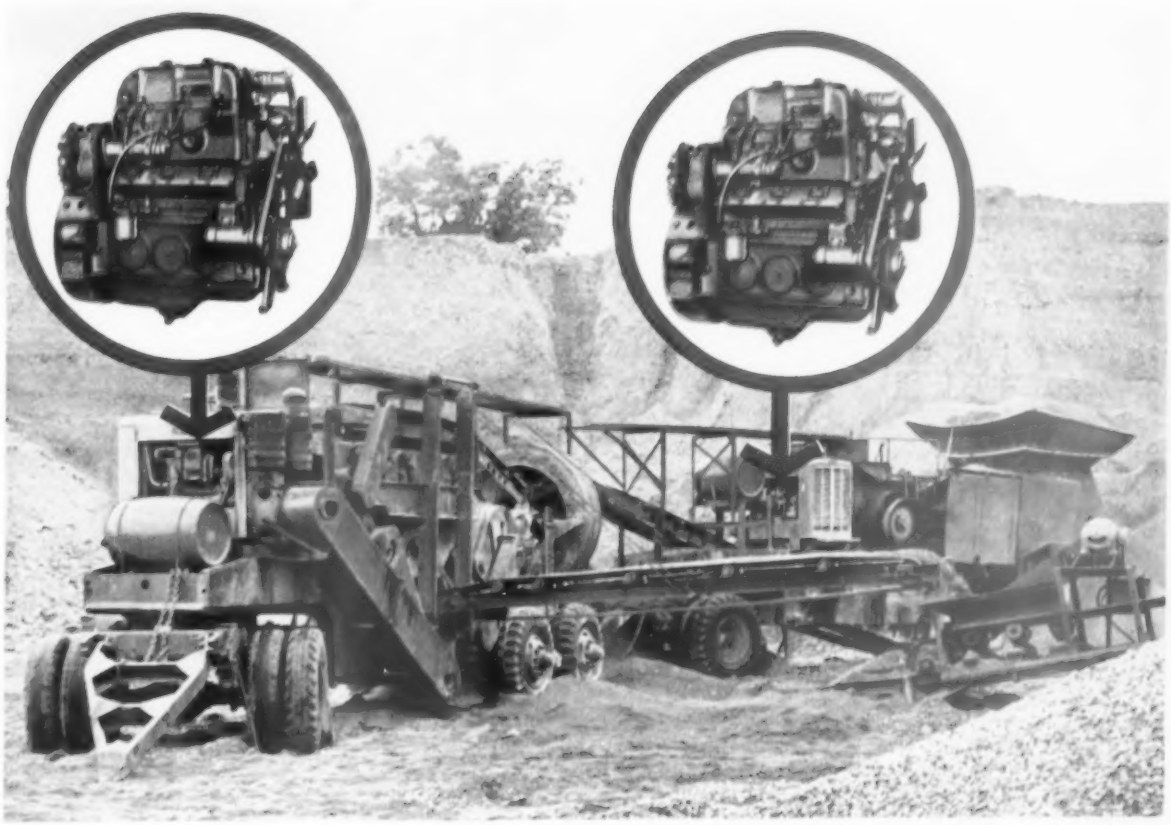
We must consider the system as a whole—the boiler, gas producer, calcining zone and the preheating zone of the kiln. Water enters the boiler cold. It passes through the stages to steam, then to vapor in humidified air. In the producer it is partially dissociated to H_2 and the associated O_2 combines with carbon to CO. These are burned and the products appear at the end of the calcining zone escaping at 1,650 deg. F. Thus the difference in heat loss is this full range from cold water to highly superheated steam at 1,650 deg. F. The worst of this is that all of the higher sensible heat was not available for process reaction of the calcining zone of the kiln. Combined, the loss constitutes about 15 percent of the coal involved although only half a pound of steam may have been used per pound of coal gasified in the producer.

Even at this high penalty the inherent difficulties are not completely solved. Selected costly coal will be bought and even then there still will be clinkering difficulties and kiln difficulties. More steam would hardly help. It just invites a different sort of trouble and it would prove too costly anyway. A precarious operating compromise is usually arrived at, not in any sense completely satisfactory from either the producer or kiln standpoints. It seems that the only solution to the problem as a whole is to use the kiln gases with their high CO_2 content, at their highest possible temperature, after having served their purpose in the reaction of the kiln calcining zone.

The Boudouards reaction calls for an ever higher CO_2 in the gas with the ever lower temperature of the bed. Thus the more steam we use in the control of the clinkering the higher will be the CO_2. If, on the other hand, CO_2 is used as an endothermic agent rather than H_2O, then this very readily satisfies the equilibrium condition and all of the carbon of the coal becomes converted to CO.

It is true that nitrogen, an idle diluent accompanying the CO_2 used for this purpose, also enters the producer. In steam it is just H_2O, but the equilibrium laws govern dissociation of H_2O, as all of H_2O is dissociated. In fact, the time factor also enters, as seldom more than half is dissociated in the very shallow fuel beds of ordinary producers. The undissociated H_2O, being of high specific heat, carries virtually the same amount of sensible heat as the nitrogen accompanying the CO_2 when kiln gases are used.

Please turn to page 113



Cedarapids Gravel Plant operated by McHenry Sand & Gravel Co., McHenry, Illinois, producing 3 grades of aggregate at 120 cu. yds. per hour. The plant is a combination prime jaw crusher with 15" x 24" jaw opening and secondary roll crusher with 24" dia. x 16" wide rolls.

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Azbe's unitized lime kiln

continued from page 110

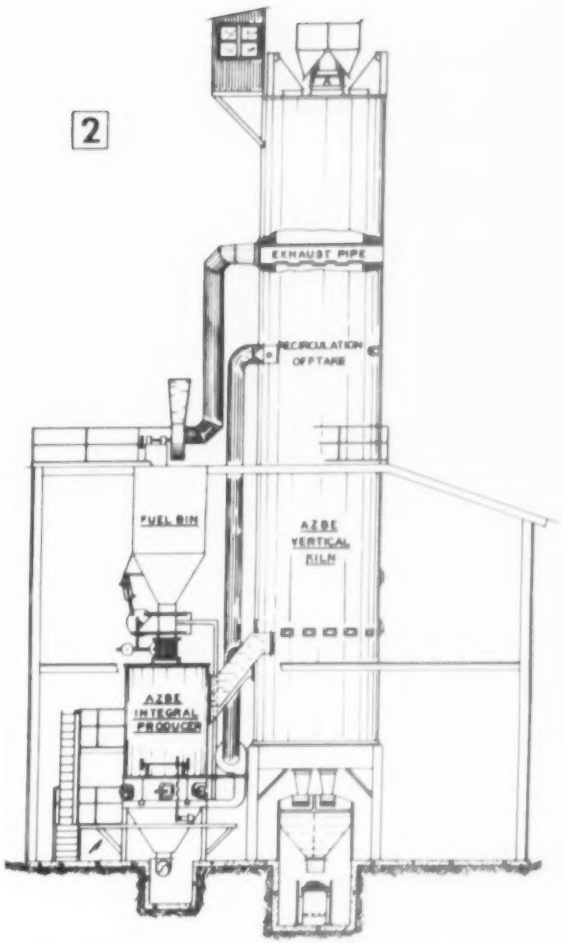
If the gases supplied to the air of the blast would be preheated, particularly if highly preheated, all of the CO_2 generated from carbon would be offset, and substantial amounts of CO_2 from the blast would also be reduced to CO. The producer gas would then contain a lower percentage of CO_2 than producer blast.

Further, if the endothermic agent would enter the producer system fully preheated, that is, at the temperature the gases are leaving the zone of process reaction, then a considerably larger amount of such gas could be used without thermal loss. The higher the preheat, the higher may be the concentration of CO_2 in the blast. In the theoretical extreme, if hot enough, no oxygen would be needed and the producer functions would start with the reducing zone. Temperature of the blast would then need to be high enough to supply the required heat of endothermic reaction and to maintain a bed temperature demanded by the equilibrium laws.

Ordinarily it is assumed that the fuel bed of a producer does not contain CO as long as there is oxygen present and that the division line between oxidizing and reducing zones is sharp. To one side of the boundary there is CO_2 and O_2, to the other CO_2 and CO. It is also assumed that the reaction at the carbon surface is either $C + \frac{1}{2} O_2 = CO$ or $C + O_2 = CO_2$. It seems the latter is not likely. Temperature is too high and equilibrium conditions favor formation of CO. Thus CO of the first reaction is the more likely surface reaction product, but it would be burned immediately if oxygen were present.

However in a compact bed with an infinite number of voids, oxygen may not be present everywhere, particularly not when its concentration has been reduced. There may be CO in the oxidizing zone in ever greater extent, the more CO_2 and the less of O_2 there is. This would be the case with a hot, high CO_2 blast. Surface reactions with more CO_2 and with less O_2 will result in lower carbon surface temperature and the reaction of carbon with oxygen will yield CO rather than CO_2.

Low carbon surface temperature results in a lower rate of reaction and, combined with low oxygen content of the bed, in a very fine ash. This in turn demands a much thicker fuel bed and a much thinner ash bed. A thick ash bed would require excessive pressures, difficult to attain if the blast were hot. Gas recirculated from kilns contain dust which, being recirculated in large volume, would tend to further increase ash bed resistance. A special producer had to be devised, which in its simpler outlines is presented by Figs. 1 and 2.



Actual plant may appear as shown here

The Azbe Gas Producer is different from all now in use. It is designed so that the minimum ash bed thickness can be maintained. This is possible only with level beds containing no metallic protrusions such as blast hoods. Mechanically actuated grates are used which assure a thin ash bed, as well as a more uniform distribution of blast components under the cross section of the bed. With a minimum of height for the ash bed, a maximum is available to the active fuel bed. With a minimum ash-bed resistance, more may be allowed for the fuel bed.

Air has to pass through as much as 3 ft. of ashes in most gas producers and the active fuel bed is seldom much more than 1 ft. In Azbe producers, ash thickness is mere inches, while the fuel bed may be as high as 5 or 6 ft.

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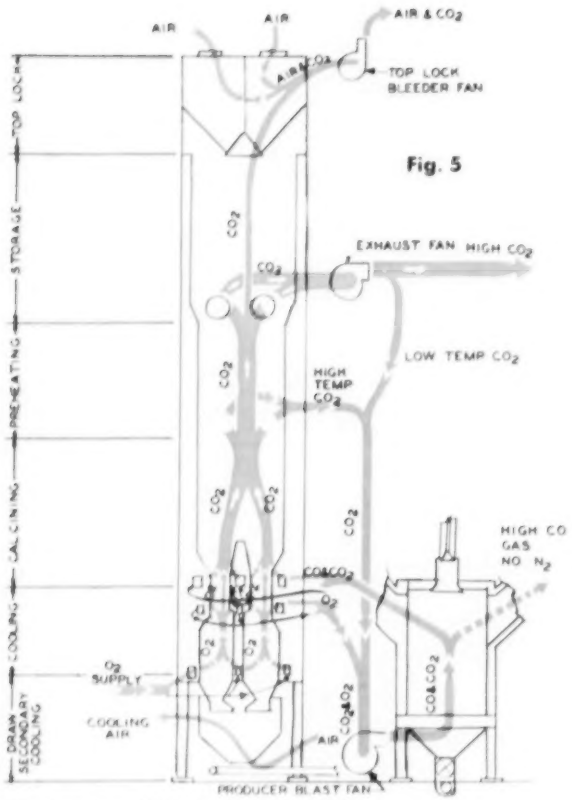

Fig. 5

Gas circuits in Azbe's integrated lime kiln

Azbe's unitized lime kiln

continued from page 113

There is no advantage in a high bed unless it is active—of a temperature high enough for the reducing reaction to proceed at a fair rate. Conditions favor this because the high initial blast temperature, the high volume of gas passing through the producer per pound of coal gasified, and the high $\frac{CO_2}{CO}$ ratio of this gas all help. But even if the gas leaving the producer is hot, that would not particularly matter since there is little chance for heat loss with the intimate kiln-producer connection. If the kiln obtains a hotter gas, it may even help.

"Heat of high elevation" in lime kilns is at temperature level that would dissociate the carbonates. In a glass tank it would be enough to melt the components and in an open-hearth furnace, necessary to maintain the desired temperature in the furnace. There is always a limited amount of such high level heat and therefore, the overall thermal efficiency of such units is always poor. There is ample low level heat, but with the supply of high level heat limited, the use of low level heat is similarly limited. As an example, any amount of heat up to 1,650 deg. F. passed through the kiln will do no good because heat above this is necessary to produce the lime. And the proportion in which the high level heat is reduced by its waste is the proportion in which kiln performance is reduced. The heat need not be completely wasted. Mere transfer from the high to the low level destroys its usefulness to the process. So the problem is always how much of the heat is available above the minimum process temperature.

In Fig. 1 the zone indicated is the reaction, or lime-making zone. The zone below is the cooler where lime is cooled and combustion air preheated. The zone above it is the preheating zone where the gas passing to waste is cooled in the preheating of the stone.

The temperature required for the calcination reaction $CaCO_3 = CaO + CO_2$ depends on the CO_2 concentration in the surrounding atmosphere. Normally 1,500 deg. F. is the minimum temperature for incipient calcination, and 1,650 deg. F. for complete calcination. Superimposed on this is the heat transfer temperature differential of about 150 deg. F. The gas thus leaves the calcining zone point of incipient calcination at 1,650 deg. F.

The calcining zone is followed by the stone preheating zone, where stone never fully cools the gas passing upward. Invariably there is an excess of heat. Therefore some of this hot gas could be withdrawn without harm and certainly any increase in the proportional amount of this gas would constitute a loss of process heat.

At the base of the kiln there is the cooler where air passes counter-current to the lime. The lime leaves the calcining zone at a temperature ranging between 2,000 and 2,500 deg. F. In its descent through the cooler this temperature is greatly reduced, but not fully because not all combustion air passes through the cooler. With coal being gasified, the producer requires approximately 40 percent and kiln obtains 60 percent of total air.

The kiln cooler and the preheating zone are in a thermal balance, the hotter the lime coming out of the cooler at B, the hotter the escaping gases at C will be. This is true because if available heat in the cooler is wasted, less lime will be made in the calcining zone and this in turn will result in less stone entering kiln and a hotter exhaust stream. Thus waste of heat at B induces additional waste at C. Similarly any heat waste below point A would act in the same manner regardless of what it is. It may be radiation and convection heat loss from kiln, duct and gas producer walls. It may be heat required to heat excess air passing through the calcining zone. Or it may be steam

Please turn to page 128

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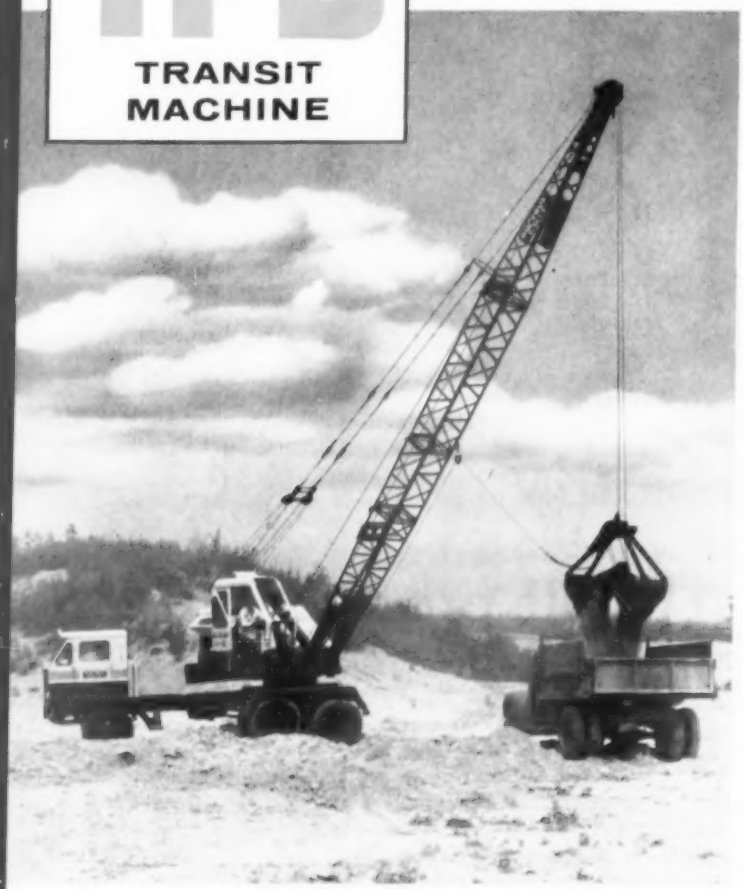

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Chandler Palos Verdes Sand & Gravel Corp., Edward Sidebotham and Son, and Torrance Sand & Gravel Products operate sand plants in adjacent ravines in the Palos Verdes Estates area just south of Los Angeles. While each operation is different in some respects, similar working conditions have prompted the firms to employ similar equipment and methods.

Most of the liquid cyclones used in the three plants were made by maintenance men who patterned their work after a cyclone still in service. All use 4-in. and 6-in. rubber-lined pumps to deliver the sand pulp to the cyclones.

The units recover enough sand to increase fine sand production considerably and also serve to remove the silt. Up to five percent fines is allowable; excess fines in the pulp are removed by a second cyclone treatment and the silt is wasted. De-silted water is sent to settling pond for reuse.

Chandler Palos Verdes Sand & Gravel Corp., based in Lomita, was possibly the first in the area to use liquid cyclones. At this plant sand from the wet screens flows to spiral dewatering units. The fine overflow is picked up by a 4-in. pump and delivered to a 24 in. diam. liquid cyclone mounted near the high end of the spirals. Processed sand from the clone falls into the upper end of the spiral and is belt stockpiled.

Please turn to page 118

"We've had starts in below-zero weather —and never any trouble"

McElroy-Wilken
Kalispell, Montana

One of the things Floyd McElroy and Fred Wilken like most about the CAT* No. 955 Traxcavator is its cold-weather starting. "We've had starts in below-zero weather and never had any trouble," they say.

Producing ready-mix concrete and digging basements under contract, they were using separate machines for loading and excavating in 1955. Then they bought the Traxcavator*. "We chose a No. 955 because Caterpillar makes the best machines on the market," both agree. "They're heavier built and have a reputation for standing up better."

Wally Buck, operator of the Traxcavator, says: "The No. 955 handles both the loading and excavating jobs a lot faster. It works circles around competitive machines." He's loading gravel from a stockpile in the photograph shown above.

The No. 955 is one of three Cat-built Traxcavators. Its bucket capacity is 1½ cu. yd. with 70 HP. The smaller No. 933 (1 cu. yd., 50 HP) and the larger No. 977 (2¼ cu. yd., 100 HP) complete the line.

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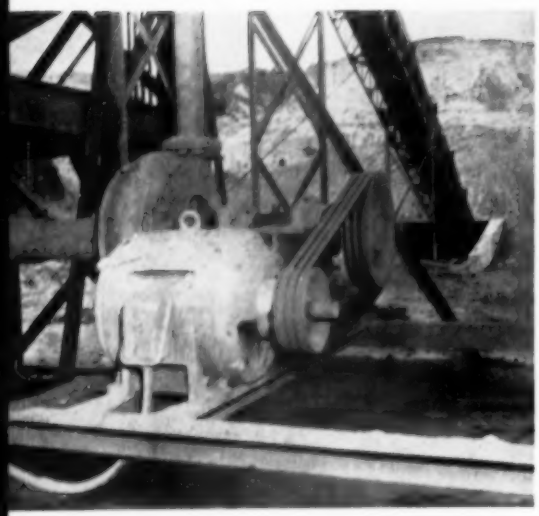

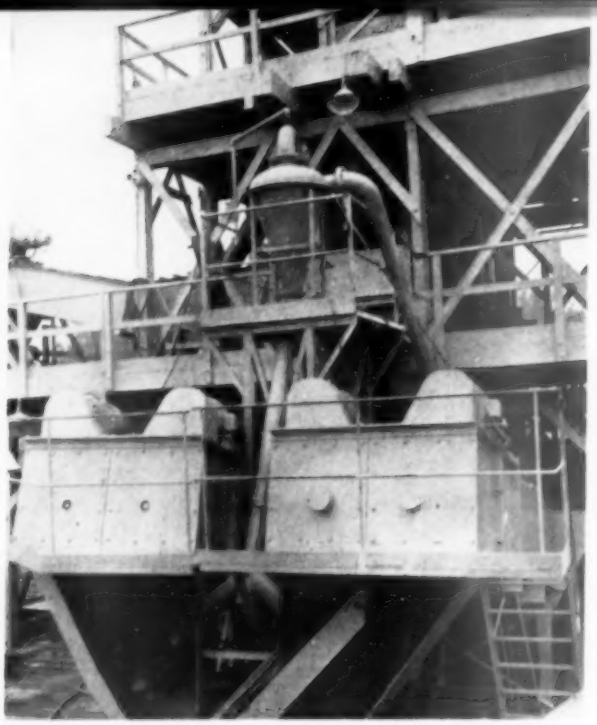

Left photo. Rubber-lined pump picks up overflow from dewatering spirals for delivery to the first of two cyclones at the Torrance Sand & Gravel Products plant. **Above photo. Liquid cyclone** over dewatering spirals at Chandler plant

Sand processors

continued from page 116

Silt is discharged to the sand-pit rim by this cyclone operating at the plant of Edward Sidebotham and Son

Discharging the sand to the spirals in this manner gives adequate mixing. The overflow from the cyclone then goes to a pit where it is picked up by a 6-in. pump and delivered to a 12 in. diam. cyclone that is mounted at the top of a steel tower on the rim of the deep sand pit. This smaller clone discharges the recovered sand with the silt to the rim, where the sandy soil quickly absorbs any residual moisture. The overflow from this clone then goes to the settling pond for reuse.

Recently Chandler installed a 5-cu. yd. digging unit in the pit, with two towers on the rim of the pit for the tail line.

The oldest of the plants is Edward Sidebotham and Son's of nearby Torrance. Here, overflow from the drag-type dewatering unit is picked up by a 4-in. pump and delivered to a small diam. liquid cyclone on the sand-pit rim, which discharges silt and fine sand to the rim. Rejects from the clone go to the settling area.

Torrance Sand & Gravel Products uses two 24-in. diam. liquid cyclones operating in series. Overflow from the dewatering spirals is picked up by a 4-in. pump and delivered to the first cyclone mounted at the upper end of the screws. Rejects from it pass at once into the second clone, mounted a few feet below the first. An operator stationed in a room near the top of the plant controls the outlet sand by operating the molasses gate valve outlets with a long handle.

When pit and plant conditions are normal, this phase requires very little attention, for once the valve is set at the suitable opening a rope of sand discharges from the unit. The recovered fine sand can be blended to the off-bearing belt for masons or concrete sand.

MAJOR EQUIPMENT REFERENCE

Pumps, *Vacseal*, 4 and 6-in.	The Galigher Co.
Dragline, 5 cu. yd.	Sauerman Bros., Inc.

END

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Newly designed
Type H Motor Control

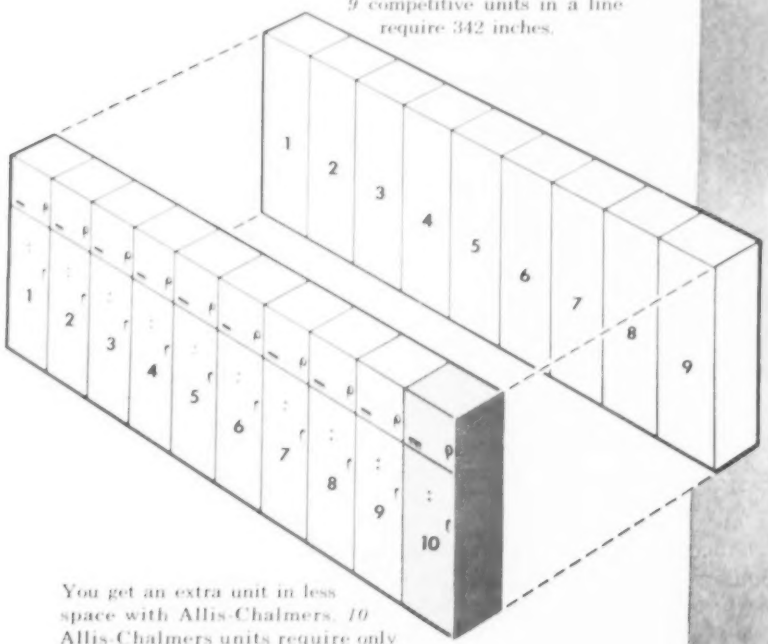
Saves valuable plant space

Newly designed Allis-Chalmers high voltage control units are only 34 inches wide. This means you can put 10 Allis-Chalmers cabinets in less space than required by 9 competitive 38-inch units. In addition, the narrower width means less space required for door swing. Result: You save a total of 2.36 sq ft of floor space per unit. On 10 units, this means a saving of 23.6 sq ft.

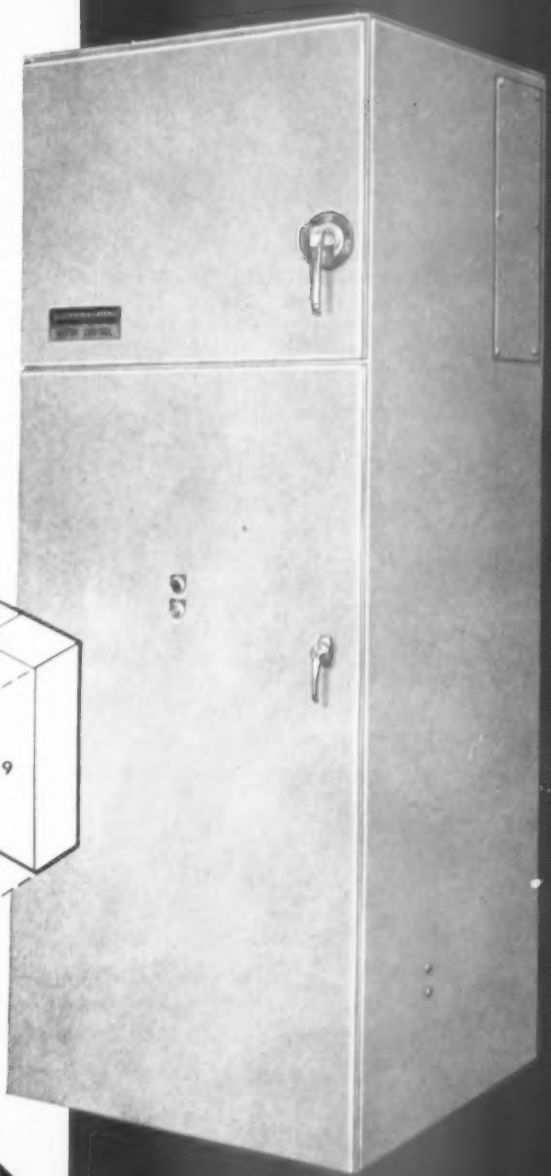
Smaller size is only one of many advantages in this new Allis-Chalmers design. You also get full-front access, more room for optional features, a completely tested unit, and the ultimate in protection for men and machines.

For more information on how this new control design can help you, call your nearest Allis-Chalmers representative, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

9 competitive units in a line require 342 inches.



You get an extra unit in less space with Allis-Chalmers. *10* Allis-Chalmers units require only 340 inches.



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A-5518

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Accessibility and increasingly efficient burning equipment mean economical, constant-cost for today and tomorrow.

Ask our man! **BALTIMORE & OHIO RAILROAD, BALTIMORE 1, MD., Phone: LExington 9-0400**

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Trade show exhibits

continued from page 89

office boy or a stenographer—no matter how well rounded she may be. If you're going to invest in an exhibit at all, be prepared to greet visitors with some of your top people. There should also be enough attendants so that visitors with a question don't have to stand around and wait to get it answered; and your representatives should be reasonably alert and not sleeping off last night's cocktail party in the exhibit booth.

It's also important that attendants be on hand at odd hours when good prospects are likely to appear. Oftentimes the peak traffic at a trade show or fair is during the lunch hour; if so, your booth should be fully staffed at this time. Early morning is another time when booths often go unmanned—in spite of the fact that visitors up and about then are likely to be more than passively interested in what you have to show. So keep your booth well attended—with people who know what they're talking about.

Follow through on exhibit leads.

Finally, don't slack off on the follow-up. In the final analysis, the test of the value of your exhibit investment is the dollar value of sales or the goodwill it produces. And unless you come up with aggressive post-exhibit follow-through you're likely to lose much of the benefit of your exhibit. This means, first of all, getting the names and addresses of prospects and influential citizens who stop at your booth; secondly, noting beside the name the type and degree of interest expressed; and, third, contacting the visitor by direct mail and personal calls after the exhibit to follow up on the impression gained at your booth. Without this final step, the first two are almost useless.

Exhibits can sell your products—and can sell you as a solid citizen in the family of local industries—if you give them the proper opportunity. If you decide to apportion part of your promotion budget to exhibiting in a trade show or fair, go first class. You'll find it pays excellent dividends.

END

UNIVERSAL ATLAS CEMENT CO., New York, N.Y., has announced purchase of a 1,000-acre site in Olmstead County, Minn., 15 miles southeast of Rochester, for the erection of a cement plant. The property contains high-grade limestone deposits.

Charles B. Baker, president of the cement company, said that a plant in southern Minnesota has figured in its long range plans for years. Universal Atlas has operated a cement plant in Duluth, Minn., since 1916.

Rock from the quarry that passes through the RCA Metal Detector, pre-set by you for your situation, is automatically inspected for tramp metal. You know the material is safe—safe for your crushers—once it's "on the other side." It's that easy! Thus, dipper teeth, drill bits, and other hard alloy parts—magnetic or non-magnetic—are brought to light! The conveyor automatically stops or the danger zone is marked, even though the trouble makers are hidden from human eyes.

An official of one large company writes: "Our Metal Detector has saved tens of thousands of dollars!" This equipment can easily pay for itself in reduced repairs, downtime, production gains. An RCA Service Company electronics technician supervises installation by your personnel. A low-cost servicing plan provides continuing maintenance.

Get complete information—Mail coupon

MARK OF RCA QUALITY

ELECTRONIC
METAL DETECTOR

RADIO CORPORATION of AMERICA
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☐ Please send me complete data on the RCA Metal Detector.

☐ Have representative call to survey our plant.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

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New cement plant

continued from page 93

take it to the bowl mill ahead of the kiln. Gypsum and raw clinker are drawn from silos at the same time and into the same drag chain conveyor. The flow of each is regulated with small apron feeders with variable speed drives. The ratio of gypsum to clinker is maintained by changing the speed of the feeder. The chain conveyor takes the mixture to the finish grinding mill.

Finish grinding is done in one big two-compartment ball mill the same size as the raw grind mill. Here the gypsum and raw clinker are ground together to make one of the several types of cement marketed by this plant—type I, IA, or III. When the new equipment is in operation it will be possible to make portland cement mortar as well as other types of cement.

This ball mill discharges to a 20 in. diam. screw conveyor of special design which takes the cement to a bucket elevator ahead of a 16-ft. diam. air separator. Finished cement is conveyed to one of 12 big silos in a pneumatic conveying system.

Tandem trailer trucks are quickly dispatched from these silos which are equipped with quick-acting spouts and a 200-ton capacity automatic scale. Each truck has a capacity of about 125 bbl. of cement and can make rapid delivery within the marketing area. Cement can be shipped by truck or rail.

All parts of the mill are accessible with a manway. It is possible to go from the surge pile of raw materials to the slurry tanks underground. These passages permit rapid access to any part of the plant in any kind of weather. In addition, they hold all the service equipment and piping where they can be inspected, maintained or repaired. All passageways have ample space to expand the system of conduit, pipes or wires without digging trenches or pits.

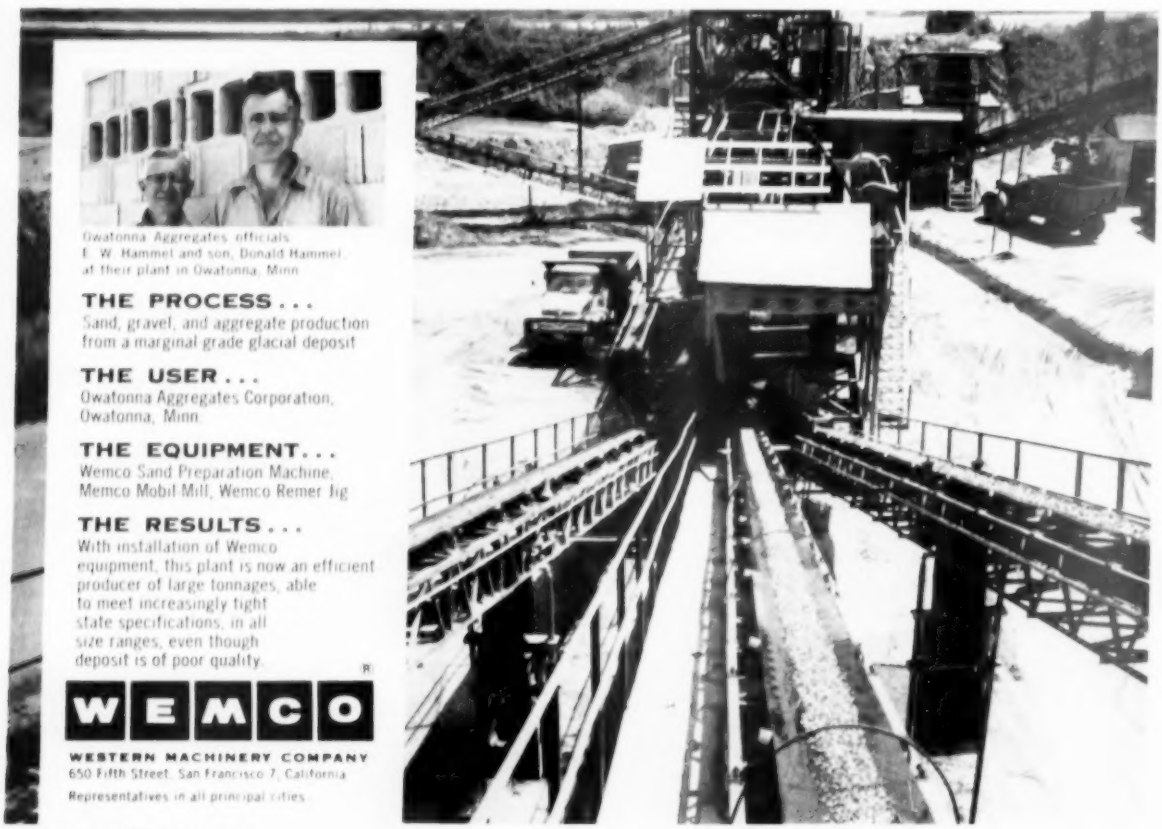
END

Rampaging river

continued from page 95

since only one product is made at a time. The belt unloads the material on opposite sides of the same pile and the front-end loader merely chooses sides for reclaiming.

When plant mix or base rock requires added fines, sand is fed from a truck hopper provided with company-made belt-type feeder. Since it tends


Owatonna Aggregates officials
E. W. Hammel and son, Donald Hammel,
at their plant in Owatonna, Minn.
THE PROCESS . . .
Sand, gravel, and aggregate production
from a marginal grade glacial deposit
THE USER . . .
Owatonna Aggregates Corporation,
Owatonna, Minn.
THE EQUIPMENT . . .
Wemco Sand Preparation Machine,
Memco Mobil-Mill, Wemco Remer Jig
THE RESULTS . . .
With installation of Wemco
equipment, this plant is now an efficient
producer of large tonnages, able
to meet increasingly tight
state specifications, in all
size ranges, even though
deposit is of poor quality.
WEMCO
WESTERN MACHINERY COMPANY
650 Fifth Street, San Francisco 7, California
Representatives in all principal cities

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Rampaging river

continued . . .

to funnel, an attendant is stationed at the hopper to keep it moving. He wears a safety belt fastened to a swinging overhead pivot to keep him from danger.

Currently, two sand products are being made—a masons sand and a concrete sand, produced alternately, with appropriate screens rung in for each. A 120-ft. radial stacker handles both products. It is mounted on wheels and runs on a concrete slab. Plans have been made for a second stacker, similarly mounted, for the sand.

A 48-in. sand-preparation machine handles dewatering, and while provision has been made for a liquid cyclone for added fine sand recovery, so far it hasn't been needed.

A brand-new fleet of trucks delivers the finished products for the plant. Eight have double trailers and four are transfer or telescopic rigs. Each can haul a 27-ton payload.

The Windsor setup is the latest of three such ventures for the owners, C. M. Syar, Jens Harms and Helge Harms who are well-known in construction circles in the West. Bob Montgomery is the local manager. The design was set up under the supervision of Willard Walker, who serves as general superintendent for the organization.

MAJOR EQUIPMENT USED AT WINDSOR SAND & GRAVEL

Dragline, No. 70, 2¼ cu. yd.	Northwest Engineering Co.
Haulage units, DW-5, DW-10	Caterpillar Tractor Co.
Tractor, D-8	Caterpillar Tractor Co.
Bulldozer	Caterpillar Tractor Co.
Idlers, 36 in.	Chain Belt Co.
Crusher, 36 in. Gyrasphere	Smith Engineering Works
Vibrating screens:	Nordberg Mfg. Co.
4 x 16-ft., Symons (2)	
3 x 12-ft., Symons (1)	
Sand washer, 48 in.	Western Machinery Company
Front-end loader	Clark Equipment Co.
Truck bodies	Cook Bros. Equipment Co.
Tractors, (11)	Peterbilt Motors Co.
Truck, (1)	Kenworth Motor Truck Corp.

END

Side line booms

continued from page 99

dump hopper to be recrushed and recycled. The second deck of this screen normally takes out about 120 tph. of 3 x 6-in. riprap which is conveyed to a field hopper. This hopper feeds an inclined stacker belt to deliver stone to storage.

Please turn to following page

THE PRODUCT . . .
Wemco Mobil-Mill for Heavy Media Separation

THE USER . . .
Owatonna Aggregates Corporation, Owatonna, Minn.

THE RESULTS . . .
In an area of high shale content, the installation of a Wemco Mobil-Mill HMS plant has enabled the operators to beneficiate their gravel to meet high state specifications for concrete. Sale of the light weight product pays for the HMS operation.

WEMCO

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Sideline booms

continued from page 123

The screen plates of this screen determine the large sizes to be made. Since the stone is used as ballast, filter rock or chemical stone in addition to concrete aggregates, size control is important. The top deck can be changed to send larger or smaller rock back to be recrushed, while a change in the screen plate of the second deck will determine the small size of the riprap. All through-screen stone is conveyed to a surge pile ahead of the screening plant.

The surge pile enables the screening plant to operate independently of the quarry and crushing circuit, and several thousand tons of minus 3-in. limestone are normally stored here.

The rate of operation of the screening plant is determined by the tubular vibrating feeder under the surge pile. This feeder can be set between 0 and 400 tph. to keep up with the demand of the sizes being shipped.

The flow into the top of the screening plant is split equally to a pair of 4 x 14-ft. three-deck horizontal vibrating screens. Normal operation of these screens produces about 100 tph. of 1½ x 3 in., 80 tph. of ¾ x 1½ in., 60 tph. of No. 4 x ¾ in. and about 40 tph. of minus No. 4. Shipping bins below the screens permits direct loading of trucks, or feeding the inclined belt conveyors which take the three larger sizes to field storage.

The minus No. 4 material can be loaded into trucks or sent to a pulverizer in the agricultural limestone area where it is reduced to 100 percent minus 8 mesh before making bulk shipments in trucks.

The three decks in the vibrating screens give the operators wide latitude to make several sizes of stone. Splitting the flow of stone between two parallel screens reduces the load on each screen. Each screen then operates more efficiently and can make closer size tolerances to improve the quality of the stone.

Hanna engineers are sure that this precision stone will be needed in the foreseeable future when even bigger rigs than the 100-ton giants are put into service. At the moment only the delay in the design and production of transmissions large enough to stand Hanna's heavy service and greater than 400-hp. engines is holding back the introduction of mammoth tractor-trailer haulage units. When they are available, the Ames quarry will be ready to produce the stone to make the heavier roads for this service.

END

THE PRODUCT...
Wemco Remer Jig
THE USER...
Owatonna Aggregates Corporation,
Owatonna, Minn.
THE RESULTS...
Prior to installation of jig, shale content of sand was 3 to 3½%, and did not meet highway department specifications of a 2½% shale. Plant now processes 60 TPH with shale content down to ½% - ¾%.
WEMCO
WESTERN MACHINERY COMPANY
650 Fifth Street, San Francisco 7, California
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Office waste

continued from page 104

Typewriter ribbons—Select typewriter ribbons more carefully to find the best for the money. Check the possibility of eliminating red-black ribbons; does red use justify the practical waste of almost all red on such ribbons? Turn one-color ribbons periodically; it's an excellent way of getting more "mileage" from them. Alternate with two ribbons to secure more life. Wind ribbons to one side each night; this reduces air effect on inks.

Pencils and pens—Use mechanical pens and pencils as much as possible. Reduce the number of varieties and colors in use. Use harder grades of lead to increase life.

Carbon paper—Choose carbon papers designed for particular jobs. Prevent wrinkling and tearing at desks by use of folders or old boxes. Turn carbon paper more frequently.

Small items—Require clerical workers to save and re-use clips and rubber bands from incoming mail. Try staples instead of clips or pins wherever possible to do so. Use only one where it will get the job done satisfactorily. Impress on employes the value of such items over the year's period of time.

Typewriters and office machines—Keys, carriages and rollers should be cleaned daily. Provide covers for all machines and insist on covering when machine is not being used. Use heavy backing sheets to conserve platen rollers. Permit use of any machine only by the person who knows how to use and take care of it. Pay attention to little malfunctions even though work can be done; small repairs are always less costly than big ones.

Utility use—Waste can exist here just as in use of supplies and materials. Use lights only when needed and be strict about their being turned out when not in use. Power-driven office equipment should be turned off when not in use. Paint ceilings and walls a light color for most efficient use of light.

Reducing the cost of supplies in the office is always a matter of attention to detail and the development of conserving habits by everyone from the executives to the newest employe. Habit is often the key. If an employe develops careless habits waste will grow; if conservative and careful habits are developed costs are always reduced. Savings are seldom accomplished through an "economy wave"—usually waste is greater after the evangelical period than before. The way to save is through habit and care on the part of every person working in the office.

END

THE PRODUCT...
Wemco Sand Preparation Machine

THE USER...
Owatonna Aggregates Corporation, Owatonna, Minn.

THE RESULTS...
This sand preparation installation washes and cleans 60 tons per hour of minus ¼" feed, and produces specification sand of closely controlled quality with maximum retention of fines.

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Star Performance puts the spotlight on the

HEYL & PATTERSON Rotary R. R. Car Dumper

one . . . man
. . . spotting
. . . minute

and your railroad car is completely unloaded and contents weighed

View of the Dumper at Buffington, Indiana Plant, Universal Atlas Cement Company.

- Dumper is designed to rotate, dump and return to initial position in just one minute.
- Rotation can be stopped instantly at any position with car and platen firmly held in place.
- External and movable counterweights have been eliminated.
- Platen-mounted electronic scale is simple, accurate and economical.
- Car retarder on dumper permits economical and safe car spotting by dumper operator.

To achieve the most economical car weighing and dumping operation, the H & P Rotary Car Dumper can be equipped with a car retarder or an electronic scale, or both. This H & P electronic scale platen (Patent Pending) uses load cells which permit instant weighing and light-weighing of car in compliance with National Bureau of Standards acceptance tolerance, and printing of weigh tickets. Exceptional accuracy and trouble-free operation are assured due to absence of wearing parts.

By all standards, the H & P Rotary Dumper is the most efficient method of unloading large quantities of bulk materials from open-top railroad cars.

Even if you receive only a relatively small number of cars per day, may we suggest that you investigate the economics of the H & P Rotary Railroad Car Dumper.

MAIL COUPON TODAY FOR NEW DUMPER BROCHURE 957

HEYL & PATTERSON, INC., 55 Fort Pitt Blvd., Pittsburgh 22, Pa.
Please send me my copy of the H & P Dumper Brochure 957.

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70 YEARS OF SERVICE

Heyl & Patterson INC.

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PCA research lab

continued from page 103

An example of the use of a questionnaire survey, (method No. 5), is one in progress during 1957 concerning consumption of power in all departments of all member company plants. It also includes type of equipment, method of operation, fineness of feed and clinker. This study tied in with the grindability studies previously mentioned. Samples of raw material and clinker have been submitted by member company plants with completed questionnaires and tested in the Laboratory. This procedure is providing a realistic picture of grinding efficiency as related to equipment and mode of operation.

Typical subjects of plant visit studies, (method No. 6), include vibrating conveyors, flame control, chain systems, combined drying and grinding, closed circuit wet grinding, transportation of powdered materials and modern refractories.

Carl F. Clausen, Director of the department, explains: "Because of the large number of plants from which we may obtain and study operational data, the work done by this department is of a magnitude and on a scale which few, if any other persons or institutions in the world, have had an opportunity to carry out."

Mr. Clausen pinpoints the department's objectives so that there can be no misunderstanding as to the purposes of investigations, surveys, laboratory testing and reports. "In this period of dynamic increases in production capacity and steady technological developments," Mr. Clausen says, "the association has worked actively to help its members achieve still better operational knowledge. Our surveys and reports contribute to the evaluation and development of new and improved processes and to bringing technical and operational understanding to plant problems."

And of the need for more precise knowledge of cement manufacturing processes, he says:

"Abolition of the rotary kiln or complete automation of a plant, although both are being worked on by many engineers, are yet some years away. But even without such revolutionary changes, the conventional manufacturing steps of size-reduction, chemical control and pyro-processing are still open to improvements in an industry where the fuel consumption may amount to less than 700,000 Btu.s per barrel at some plants and at others it may range up to more than twice as high.

"The guiding criteria for our program of technical studies is to produce reports which will help the industry attain the highest quality of the product, the best operating efficiency and maximum preservation of equipment."

END

Plibrico Engineering

THE "pro" OF YOUR project

In a few days time you can have a plan in your hands that took over forty years to develop.

You benefit, that is, from Plibrico's more than forty years of dealing with refractory and combustion problems. All that experience is directly applied to your job by our Engineering Department. From this department came such developments as monolithic construction . . . positive anchorage . . . air-cooled one piece linings. Such are the makings of a "pro".

Put this "pro" to work on your next calcining, drying, or processing furnace project.

Plibrico REFRACTORIES ENGINEERING CONSTRUCTION

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Azbe's unitized lime kiln

continued from page 114

used in the blast of the producer. It is all heat deductible in full extent from the heat available to the calcining reaction and all of these losses have a companion loss of low level heat at points A and C of the kiln.

This is very serious. Many kilns have a thermal efficiency of only 30 percent and even good kilns are seldom more than 60 percent efficient. To further illustrate the importance of conservation of heat of high elevation in processes of such high temperature level, we state that if a lime kiln would be operated with 100 percent excess air no lime would be made.

This interesting process is subject to other complications. If the gas produced would be very good, of low CO_2 and low H_2O content, high in CO, hydrogen and hydrocarbons, and this gas be introduced into the kiln with a minimum of sensible heat loss, at a high temperature, then subsequently this gas be burned with air arriving from the cooler after having passed through a bed of lime up to 2,500 deg. F. in temperature and having been heated nearly to this temperature, the results would be such high combustion temperatures as to be most damaging to the kiln and to the lime.

Lime at its best is an exquisite substance. It has lost the CO_2 but still retains the volume of the original stone, resulting in somewhat less than half of it being pore space, bordering on the molecular in individual size, and creating a tremendous surface area. Such lime is chemically extremely active and possesses other desirable characteristics. But to obtain such lime it must not have been subjected to temperatures greater than 2,000 deg. F. and not have been exposed too long even to this temperature.

On increased heating and particularly at increased temperatures the lime shrinks, it loses its pore space and surface area and thus also its reactivity and is impaired in respect to other characteristics as well.

The engineer thus is subject to two opposing demands; high thermal efficiency with low heat losses and a highly preheated combustion air. The two combine in a chamber of surface combustion state where initially there is but little chance for useful heat dissipation. Under these conditions very high combustion temperatures are the natural result. From the product quality standpoint the demand on the other hand is for low temperatures. How to satisfy both has been a puzzle to engineers as long as there have been engineers.

The suggestion is likely to be offered to draw the material from the kiln as soon as it is calcined, not to allow it to heat up, to keep it in heat absorbing state and thus limit the temperature of the zone by absorption. It is a valid suggestion which however unfortunately can be followed only to a small and inadequate extent. It would be possible if all of the stone would be of the same size but such stone is never obtainable. Even in case of perfectly sorted stone the smallest will calcine five times as fast as the largest. Ordinary good sorting constitutes a calcining ratio of 20:1 and there are cases of 50:1, and since all of the lime drawn must be calcined, all must be retained in the hot zone until the slowest is calcined.

There have been many attempts to solve the problem. Kilns were operated deliberately in a state of incomplete combustion, or with large amounts of excess air, or steam was injected into the hot zone, or lime was drawn containing core, or kiln was operated at such low capacity that radiation losses took care of the matter. None of these were in any degree satisfactory and all proved costly.

Recirculation was practiced by the writer as well as by others but not in a completely proper manner and therefore in an inadequate, not completely satisfying degree. It is only through this thermal integration of kiln and producer system that both a theoretically and practically sound application became possible.

The system should be of value in fields other than lime, particularly in the manufacture of ceramic ware where heat and heat control problems are similar and, in some cases, even more critical.

Wherever temperature must be built up gradually, it would be possible to use the gas producer in this integral manner as a sort of a regenerator, recirculating initially a large amount of gases, then gradually diminishing to the point of no recirculation for the highest calorific value of the gas. For a reasonable period this latter would be permissible without creating serious clinkers, but if the process conditions would justify their formation, the arrangement of the producer will facilitate their ready and quick removal.

There are special possibilities in the chemical industry. One possible example of application is presented with Fig. 5, a lime kiln integrated with a gas producer. The whole system is adopted for oxygen operation having as products a full strength CO_2 gas and if desired, a combustible gas high in CO with no nitrogen content.

END

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Having the right trailer to handle the *specific type* of material on *your job* can make a big difference in your profit picture. That's why your Athey-Caterpillar Dealer and Athey offer you the industry's most complete line of haul units — and the service of men with the know-how and experience to help you select the right size and type of trailer.

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He'll help you select the exact trailer size and features you need to gear your job for greatest output. He'll give you facts on the world's most complete line of haulers — rear dump, hydraulic ejection, side dump or bottom dump in capacities up to 15 tons.

They're designed and manufactured by Athey — leader in trailer units for a third of a century!

See your Athey-Caterpillar Dealer today — or fill in the coupon below — for complete details and mail to ATHEY PRODUCTS CORPORATION, 5631 West 65th Street, Chicago 38, Illinois.

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Chicago 38, Ill.

I'm interested — I would like to have an Athey Earthmoving expert call on me — at no obligation.

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In after-hours discussion, Robert Mitchell, left, talks with V. P. Ahearn, executive secretary of both associations.

THESE POINTS WERE NOTED:

- Highway Program costs will double original estimates
- 1958 show is oversold again
- Public relations work continues
- Railroads' changing attitude toward sand and gravel business

NSGA directors review progress

FEDERAL AUTHORITIES now think that cost of the 13 to 15-year Interstate Highway Program will double the original estimate of $27.4 billion. More important, revenues expected under the 1956 law will be insufficient to carry on the program as planned by the time 1960 rolls around. Since Congress is prone to soak trucks for a big part of the bill for highways—trucks don't actually benefit as much as Congress is led to believe—chances are that truck taxes will be increased to help carry additional unplanned expense of road building.

This was one of the major problems discussed at a board of directors meeting of the National Sand and Gravel Association held in conjunction with directors of the National Ready Mixed Concrete Association at the Manoir Richelieu, Murray Bay, Quebec, Canada August 28-29. Another problem had to do with a changing attitude of the railroads toward the sand and gravel industry: apparently they are willing to accept a dwindling freight business from sand and gravel, to be caused by the continued policy of raising freight rates. Both the ICC and the sand and gravel industry seem to be caught in the middle of a mad race by the railroads to grant increased wages, then to raise rates to offset the higher costs.

But there were many bright pictures to report at the meeting. Prospects for the 1958 convention and equipment exhibit—Chicago, February 10-13—are bright indeed. In fact, requests for exhibit space are running 50 percent more than that available.

The association's public relations program continues to make progress. Now operating under a $10,000 allocation, the committee is really getting underway with a program. The first major publication, covering the problem of writing zoning ordinances, is nearing completion. Another publication on land rehabilitation is already in the planning stage, and a third is being considered.

The two-day meeting at Manoir Richelieu was combined with a pleasant boat trip on the St. Lawrence and Saguenay Rivers from Montreal to Murray Bay and return. Success of a similar trip and meeting three years ago prompted a return engagement. Separate meetings of the two boards were held the first day, and a combined meeting of both boards was held the second day of the two-day meet.

Committee reports. President Roy E. Weaver, who presided at the NSGA meeting, stated that the association had progressed actively and financially, which was borne out in the committee reports that followed. Specifically, Vincent P. Ahearn, executive secretary of NSGA, read an excellent financial report and E. K. Davison read the report of the Auditing Committee, which was adopted.

That exhibit space for the 1958 convention and show could be over-sold because of increase in requests for space by manufacturers was announced by Claire Laird, chairman of the Manufacturers' Division. The show could become bigger every show year, but

(Continued on page 132)

HAYNES Alloys solve the *tough* wear problems

NO MAINTENANCE FOR 2 YEARS

Trouble-free mining operation in abrasive muck with HAYNES Alloy

Ordinary bearings and rollers couldn't take this punishment and lasted about 3 weeks. But when these rollers were built-up and hard-faced with HAYNES STELLITE alloy No. 6, service life was extended to years instead of weeks!

Whether your equipment handles rock, sludge, or acid—where there's a serious wear or corrosion problem, you will find that a HAYNES alloy will reduce maintenance and replacement costs. For complete information about hard-facing, write for the Hard-Facing Manual. Address HAYNES STELLITE COMPANY, Division of Union Carbide Corporation, Kokomo, Indiana.

Constantly and completely covered with abrasive muck. This equipment, deep in the mine, gathers and transports ore at the digging sites. Parts were hard-faced right on the job—almost 600 ft. below the earth's surface—with HAYNES STELLITE alloy No. 6 rod.

See... **Your local Haynes Stellite Dealer**

or

Write... **to Haynes Stellite Company**

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Joint NSGA-NRMCA board of directors meeting. Stanton Walker reviews progress in engineering

Photos by Jules Blouin

NSGA DIRECTORS

(Continued from page 130)

space in Chicago is the limit on show size at the present time. This situation gave rise to the question of what to do in the future: stay in Chicago with a limited show or move its location to take advantage of increasing space requests by manufacturers. As an indicator of growth and interest in association activities, Mr. Laird announced that 14 new members had been added to the Manufacturers' Division recently.

The Public Relations Committee is becoming more and more active since it was given $10,000 at the last board meeting to put a good program on the road. E. K. Davison, reporting for his committee, gave evidence that the committee was off to a fast start. Nearly ready for publication is a booklet discussing the problem of writing zoning ordinances, taken from what is considered some of the best in existence. Full credit was given to "Pete" Ahearn, who compiled the whole work before taking off for Armed Service duty. The material is being reviewed finally, preparatory to publication.

A second publication by the committee is being organized: Land Rehabilitation. This is considered to be a helpful project on behalf of industry. It will include stories and pictures of what has been done by industry members, and will be suitable for presenting to municipal officials as well as for inspiration for members.

A third booklet—one of the most serious things the industry has tried to do—is being considered. It proposes to cover the ticklish problem of writing performance standards for the industry.

A serious problem confronts the sand and gravel industry in the form of continued raises in freight rates asked for by the railroads and allowed by the Interstate Commerce Commission. Charles E. Brady, appointed to head a Traffic Committee last year in Los Angeles, said that his committee had reviewed the traffic situation to date, to find a common ground for studying problems in the future. The industry received excellent support of its position through Mr. Ahearn's testimony before committee hearings on Ex Parte 206, but still did not get the recognition it should have. ICC's decision in the case resulted in these over-all general freight-rate increases for the roads: 14 percent in eastern territory, 12 percent in western territory and between east and west, and 9 percent within, from and to southern territory. The decision included the interim increases allowed previously.

Attitude of the railroads seems to be that they are willing to accept the loss of sand and gravel business, and that they are going after the rate raises that they say are needed to keep roads in sound financial condition. If they persist in this feeling, in five to ten years the sand and gravel business on railroads will dwindle to little or nothing. If so, the importance of relocating plants off-rail will increase.

Staff reports. A complete up-to-the-minute report on engineering activities was given by Stanton Walker, association director of engineering. He pointed out several contributions that association engineering tests and studies are making to industry. The aggregate evaluation program, based on freezing and thawing of concrete made with the aggregate under test, is showing results. Since the spring of 1956, 86 aggregate samples have been received and most have been tested. The job is to correlate measurable characteristics of aggregates with actual performance as to durability in the concrete. Although some difficulties in correlation have been experienced, much success has been made toward learning more on how to write specifications for aggregates. Information on tests is going back to the submitting companies as soon as it is available.

The flexural strength studies have contributed much to engineering knowledge. Results of the studies have been published, and most have been

(Continued on page 141)

Between sessions, E. K. Davison, Public Relations chairman for NSGA, left, and President Roy E. Weaver

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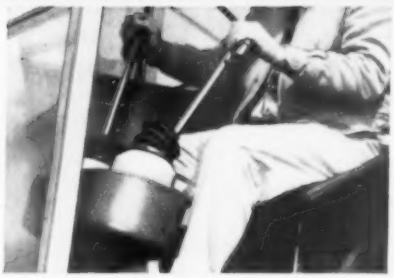
Turntable is secured to crawler and revolves easily and freely on a huge sealed "ball bearing." No center pin or nut, centering gudgeon or exposed roller path . . . no turntable rollers . . . no constant adjustment, maintenance or lubrication problems.



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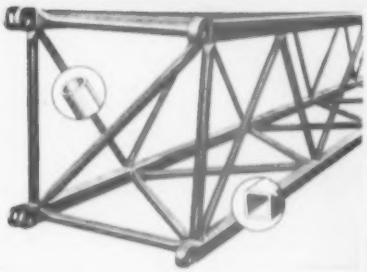
The newest and most effortless of all shovel-crane power controls. "Metered Air" feeds power to clutches at any rate desired — yet operator retains full "feel" of all operations. Fewer levers, fewer motions, faster, smoother, less effort, less fatigue, more output.



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*U.S. and foreign patents applied for.

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Just like the big 2½-yd. Lorain-85A, the fully convertible 1¼-yd. Lorain-56 gives you the 3 big Lorain features that will mean more profits on any job. You get greater operating ease, longer life, higher production, reduced maintenance . . . plus increased crane capacities with these "Big 3" features.

There are many other "56" advantages, too, that make it an exceptional value in the 1¼-yd. class. Here are a few: full air control of crawler operations . . . hoist and swing drums and travel shaft on anti-friction bearings . . . torque converter power-take-off . . . choice of two crawlers . . . crane capacities up to 30 tons available . . . a new, interchangeable hoe with dipper widths from 36" to 48" . . . and there are many more.

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MANUFACTURERS OF POWER SHOVELS, CRANES, CLAMSHELLS, DRAGLINES AND HOES — ON CRAWLERS, RUBBER-TIRE MOTO-CRANES OR SELF-PROPELLED CARRIERS — EXCAVATORS, ⅜ to 2½ YDS. — CRANES, 7 to 75 TONS

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Engineers check the selection, mixture and density of the clinker. A similar close watch is maintained at every stage of the manufacturing process at CRL's Marelan plant.

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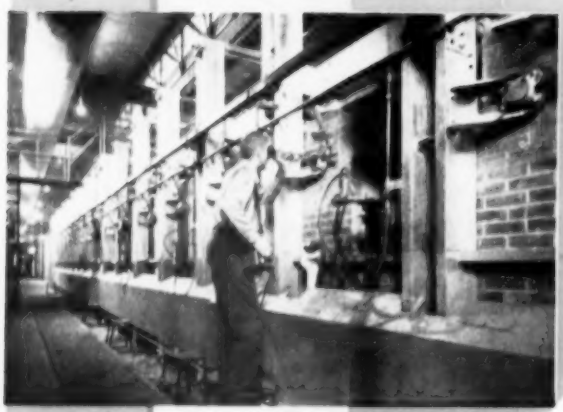

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AIR COMPRESSORS — Le Roi Division, Westinghouse Air Brake Co. has issued eight-page Bulletin P-106B describing Model 600 rotary air compressor. Illustrations and general specifications of the compressor are included. Bulletins describing lubrication systems, volumes and pressures of Le Roi's entire line of stationary air compressors are also available.

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BURNERS—Hauck Mfg. Co. has issued the following catalog data sheets: 409-A, on its Series B oil burners for any grade fuel oil; 709-B, on electric oil heaters for heavy grades of fuel oil; 811, on blast type pilots for ignition of industrial gas or oil burners; and 804-D and 804-LE, on "Retain-A-Flame" gas burner nozzles, screwed and flanged types.

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CALCIUM CHLORIDE MANUAL—Calcium Chloride Institute has released Manual HM-1, a comprehensive manual on the subject of handling, storing and applying calcium chloride. Directions for preparing calcium chloride solutions are included.

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CASTINGS—Alloy Casting Institute has released a set of data sheets giving up-to-date physical property information available on the heat resistant cast high alloys. Central feature of the sheets is a listing of room temperature and elevated temperature properties of each of the cast heat resistant alloy grades. In addition to specific property data, each of the 14 sheets gives a concise discussion of the applications, designs and fabricating characteristics of each alloy. Metallurgical structure and characteristics of each alloy are completely described.

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CENTRIFUGAL PUMPS—The Allen-Sherman-Hoff Pump Co. has released technical data Brochure 357 describing its Hydroseal, Centriseal and Packless rubber-lined pumps, and its line of sump pumps. Advice on proper construction of sump chambers is included.

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CONVEYORS — U.S. Hoffman Machinery Corp. has released eight-page Bulletin PB-500 describing its suction type and pressure-type pneumatic conveyors. Illustrations of optional equipment and installations are included. Bulletin M-103 covering centrifugal blowers and exhausters has been released also. Various types and designs of the units are described. Performance and capacity range charts are included.

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CYCLONES — Equipment Engineers Inc. has published Bulletin 830 describing the classifications and applications of Krebs cyclones. Illustrations of installations are included.

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DIESEL ENGINES—International Harvester Co. has made available a 12-page catalog covering its line of six diesel power units. Diagrams, cross sections, exploded views, dimensions and horsepower ratings of the units are included.

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DOZER BLADE—J. I. Case Co. has released Bulletin CTS-106, featuring a power-angling dozer blade for 80 and 100 hp. Case TerraTrac crawler-tractors. Charts containing information on tractor power, speeds and blade action are included.

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DUST COLLECTORS—Torit Mfg. Co. has issued "How much are you paying for dust?," explaining the economies of dust control. Illustrations of both cabinet cloth filter dust collectors and cyclone separator type collector installations are included.

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ELECTRODE GUIDE—Air Reduction Sales Co. has made available Form ADC 650G, "Electrode Pocket Guide" containing an electrode consumption calculator, providing data for estimating consumption per linear foot in the welding of various types of joints. The factors which determine electrode selection, industrial and government specifications for filler metals and testing of deposited weld metal are discussed also.

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EXHAUST PURIFIERS — Oxy-Catalyst, Inc. presents "Exhaust Fumes Are Poison," a folder containing technical characteristics and typical selection data for three types of catalytic purifiers: OCM Catalytic Exhaust purifier for engines fueled with LP gas or unleaded gas; OCM dieseler for four-cycle engines; and Oxy-Muffler for engines operating on leaded gasoline.

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FORK LIFT TRUCKS—Baker-Raulang Co. has published Bulletin 1348A covering Model FG-60, and Bulletin 1395 covering Model FG-50 fork lift trucks. The bulletins contain tables and charts of dimensions, performance data and detailed descriptions of components.

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GEAR MOTORS—U.S. Electrical Motors, Inc. has issued a 15-page booklet describing its Syncrogear gear motors. Split views, lubrication and design features are given for single, double and triple reduction motors, totally enclosed and explosion-proof motors and right angle, worm-gear motors.

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FREE INFORMATION

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HEAVY MEDIA SEPARATOR — The Ore & Chemical Corp. has made available a folder describing its five models of heavy-media separators for use by sand, gravel and limestone processors. Operational procedures and power requirements are included.

Enter 514 on Reader Card

LINK SHAFT—Clark Flexible Link Shaft Co. has released a bulletin "A New Long Arm for Industry" describing its flexible link shaft. Application and specification sheets are included.

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LOADERS—Tractomotive Corp. has issued 16-page catalog 1033-5-57 illustrating and describing each of its five Tracto-Loader models currently in production.

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MATERIALS HANDLING—Pioneer Engineering has published a 36-page catalog describing its two lines of job-engineered and pre-engineered conveyors. Accessory items such as drives, head and tail sections, supports, rock ladders, troughing and support idlers, several types of belt take-ups and hoppers are described also.

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METERS AND CONTROLS—The Hays Corp. has made available Publication 54-766-38, explaining principles, construction, operation and features of its Veriflow meter and Veritrol controller. Publication 57-687-297, a digest of specifications of instruments and controls manufactured by the company, is also available.

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ROCK RIPPERS — Greenville Steel Car Co. presents Form IH-357, describing its tractor-mounted rock rippers for International Harvester tractor models TD-14 and TD-18. Specifications and illustrations of uses for the ripper are included.

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ROTARY COMPRESSOR — Davey Compressor Co. has issued Form E-267, describing its Model 125 rotary compressor. Unit illustrations, complete specifications and a rotary compression cycle diagram, are included.

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SHOVELS — Manitowoc Engineering Corp. has published a 16-page booklet describing its Model 3000 series of 2-cu. yd. shovels, draglines and 40-50 ton cranes. Full specifications are given.

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TOOL CATALOG—The Weatherhead Co. has published eight-page Catalog 6111, featuring its line of tube working tools. The catalog illustrates and describes tools for flaring, burnishing, double flaring, cutting, bending and joining copper and J.I.C. steel tubing. Complete instructions and specifications are included for each.

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TRACTOR SHOVELS — Yale & Towne Mfg. Co. has issued a brochure covering its model 104 tractor shovel. Complete specifications of the 1½-cu. yd. shovel are given along with a list of standard and optional equipment.

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TWO-WAY RADIO—General Electric Communication Products Department, has brought out Bulletin ECR-490A on its new transistorized power supply for two-way radio units.

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V-BELTS — The Boston Woven Hose & Rubber Co., Division of American Biltrite Rubber Co. has made available a leaflet explaining uses and specifications for its line of V-belting and containing information on reducing V-belt down-time.

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VIBRATING SCREENS—Stephens-Adamson Mfg. Co. has made available Bulletin 757. The brochure includes information and illustration of Style No. 300 normal duty and Style No. 400 heavy duty series of vibrating screens, with practical applications, specification data and a detailed theory of screening practice.

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WIRE—The Colorado Fuel and Iron Corp. has made available a 72-page catalog describing its complete line of Wickwire wire. Complete ordering specifications for all wire including manufacturers low-carbon coarse wire, high and low carbon fine and specialty wires and flat and shaped wire. Diagrams and descriptions of various types and grades of wire are included.

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WORK GLOVES—The Granet Corp. has published a catalog describing the industrial uses of its six different lines of coated fabric work gloves. Chemical resistance charts explain the best application for each type of glove.

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Iron-shod stamps relieved men of the back-breaking task of crushing ore with a hammer. But these primitive replacements for muscle power required long and tedious workmanship, were clumsy and difficult to operate and still produced only small quantities.

Today's ore processing plants use the muscle power of efficient grinding mills to turn out many tons of processed ore per day. Many mill users specify and insist upon CF&I Grinding Balls and Rods for their mills because the steel has the ideal toughness-hardness balance that assures optimum grinding ability plus maximum wearability.

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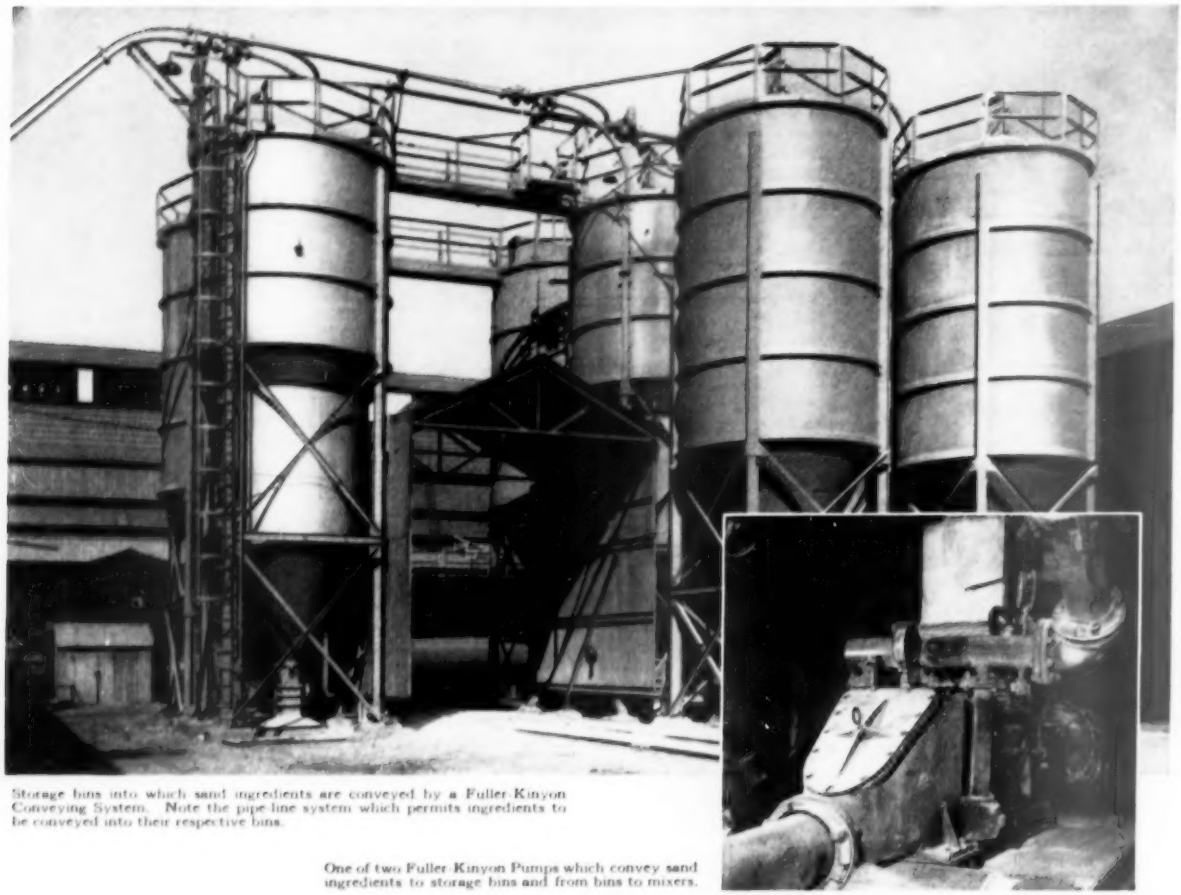

Storage bins into which sand ingredients are conveyed by a Fuller-Kinyon Conveying System. Note the pipe line system which permits ingredients to be conveyed into their respective bins.

One of two Fuller-Kinyon Pumps which convey sand ingredients to storage bins and from bins to mixers.

FULLER-KINYON CONVEYING SYSTEM HANDLES THREE DIFFERENT MATERIALS EFFICIENTLY, WITHOUT WASTE

To reduce costs and speed up handling of foundry sand ingredients with minimum waste, General Steel Castings Corporation, Granite City, Illinois, installed a Fuller-Kinyon Conveying System.

Here's what it does for them—

The system unloads corn flour, silica flour and bentonite from hopper bottom cars by means of Fuller-Kinyon Pumps which convey these materials through pipe lines to a number of storage bins. The flexibility of the system makes it possible to unload cars in a fraction of the time that would be required manually, *and*, waste due to spillage is eliminated. Two pumps used in the operation can be moved on narrow gage tracks for spotting under cars or bins. One pump is used mainly for unloading and delivery to storage—the other for delivery from storage to supply bins above the mixers. However, it is possible to unload cars and reclaim from storage simultaneously. Where bins are located so that they cannot discharge directly to a pump, an F-H Airslide® conveys from bins to the pump.

Prior to the Fuller installation, material was received in bags and manually unloaded, stored and transported to the mixers. It figures—*costs were much higher*. Now, waste has been eliminated! Another important feature—the company has realized extra savings by purchasing materials in bulk.

Fuller air-conveying systems are in operation in hundreds of plants throughout industry, cutting costs and increasing profits, day in and day out. The next time you have a materials-handling problem, why not get in touch with Fuller . . . chances are you will also profit.

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American Mining Congress

Summary of Events (continued)

TUESDAY

8:30 A.M. Registration—Lobby, Newhouse Hotel
9:10 A.M. Pre-Session Motion Pictures
9:30 A.M. **State of the Mining Industries**—Bonneville Room, Lobby Floor, Newhouse Hotel (page 18).
Underground Mining—Crystal Room, Lobby Floor, Newhouse Hotel (page 18).
Open Pit Mining—Gold Ballroom, Mezzanine Floor, Newhouse Hotel (page 20).
12:15 P.M. **Strategic Minerals Luncheon**—Lafayette Ballroom, Hotel Utah (page 21).
1:40 P.M. Pre-Session Motion Pictures
2:00 P.M. **Public Lands**—Bonneville Room, Lobby Floor, Newhouse Hotel (page 22).
Safety and Health—Crystal Room, Lobby Floor, Newhouse Hotel (page 23).
Milling and Metallurgy—Gold Ballroom, Mezzanine Floor, Newhouse Hotel (page 24).
4:00 P.M. **"Kennecott Party"** at Bingham Canyon. Kennecott, Utah Copper Division will be host for informal open-air supper at its famous open-pit mine at Bingham Canyon. Buses leave Newhouse Hotel at 4:00 P.M. and Hotel Utah at 4:10 P.M. Tickets, $1.50. **No parking space for private cars available at Bingham Canyon.**

WEDNESDAY

8:30 A.M. Registration—Lobby, Newhouse Hotel
9:10 A.M. Pre-Session Motion Pictures
9:30 A.M. **Tax Panel: Gold, Silver and Monetary Policies**—Bonneville Room, Lobby Floor, Newhouse Hotel (page 25).
Underground Mining—Crystal Room, Lobby Floor, Newhouse Hotel (page 26).
Open Pit Mining—Gold Ballroom, Mezzanine Floor, Newhouse Hotel (page 27).

1957 Convention
Metal Mining—Industrial Minerals

Summary of Events (continued)

WEDNESDAY (continued)

12:00 Noon **Luncheon Meeting—Board of Governors, Western Division, American Mining Congress**—Lafayette Ballroom, Hotel Utah.
1:40 P.M. Pre-Session Motion Pictures
2:00 P.M. **Industrial Engineering—Management Problems**—Bonneville Room, Lobby Floor, Newhouse Hotel (page 28).
Underground Drilling Symposium—Crystal Room, Lobby Floor, Newhouse Hotel (page 29).
Industrial Minerals—Gold Ballroom, Mezzanine Floor, Newhouse Hotel (page 31).
7:30 P.M. **Annual Banquet**—Roosevelt Ballroom, Hotel Utah. Main speaker will be [illegible] served by the Hotel Utah. Social hour, dancing to [illegible] entertainment program, a splendid entertainment program. Formal or informal, as you prefer. All tables reserved. Tickets $12.00.

THURSDAY

8:15 A.M. **Field Trips** (see pages 7-8).
9:00 A.M. to 4:00 P.M. **Tax Forum**. Open to tax accountants and attorneys and interested mining men—Lake Room, Hotel Utah.

TICKETS

The sale of tickets for the Miners Luncheon at Saltair on Monday night has been discontinued. Annual Banquet tickets will go fast. The Hotel is equipped to accommodate only so many guests, and those who wish to attend should get their tickets at the Newhouse Hotel Ticket Office. This office will be open in the Lobby of the Newhouse Hotel from 8:30 A.M. to 4:00 P.M. on Sunday, and from 8:30 A.M. to 5:00 P.M. on Monday, Tuesday and Wednesday.

Metal miners look at rock industry

ALMOST 3,000 METAL MINERS and industrial mineral producers, consulting engineers and their wives converged on Salt Lake City, Utah, to attend the mining convention of the American Mining Congress, September 9-12. The American Mining Congress is mainly an association of mine owners and top level management. While the program was focussed upon the metal miner and his problems, a considerable part of it covered subjects of interest to the industrial mineral producer.

The session on industrial minerals included five papers which were broad in scope and general rather than specific. These were aimed at giving the metal miner an over-all look at the rock products industry.

Dr. Joseph L. Gillson, chief geologist for E. I. Du Pont de Nemours & Co., talked on "The Industrial Mineral," and gave considerable comparative market data on nonmetallics vs. metals. He also gave an historical account of the growth of U. S. industry and its effect on the industrial minerals field.

The next two papers gave outlines of old and new mining companies with respect to their industrial mineral operations. Murl H. Gidel, assistant chief geologist for the Anaconda Co., an old company, gave his firm's position, and Charles W. Sweetwood, assistant manager of the exploration division of J. R. Simplot Co., a new mining name, explained his company's stand as a large producer of phosphate rock, silica, barite, clay and other materials.

O. A. Power, Food Machinery & Chemical Corp., spoke on the chemical company and its industrial minerals. J. V. Otter, Morrison-Knudsen Co., Inc., outlined the role of the general contractor in the industrial minerals field and suggested that often it might be an advantage to let a general contractor do the mining and transporting of raw materials. Mr. Otter told of his company's work at Promontory Point (see ROCK PRODUCTS, January, 1957, p. 108 and October, 1957, p. 102), of their several ballast operations and of their high-calcium limestone work in Oregon. The talks by Mr. Sweetwood and Mr. Otter were illustrated by slides.

Because of the sudden and steep decline in practically all non-ferrous metal prices, particularly copper, lead, zinc and tungsten, the word **gloom** could describe the general feelings of the metal producers at the convention. Anger directed at the government was centered around imports of metal from foreign sources where cheap labor keeps costs below those of the domestic producer. Resolutions that a tax be imposed on such imports were presented and adopted.

The four-day meeting had sessions running concurrently in the Newhouse Hotel. There were three papers on labor relations, five on exploration and geology, nine—at two separate sessions—on milling and metallurgy and eight on open-pit mining. One informative paper on blasting with commercial grade ammonium nitrate was read by Dort Tikker, Inorganic Chemical Div., Monsanto Chemical Co. He gave details of a granite operation where the blasting costs were reduced from 16 cents to 2.4 cents per ton by the adoption of a special type of detonating charge developed by Monsanto.

Several important state and local government officials spoke at the meeting, including Governor George D. Clyde of Utah, Victor E. Cooley, deputy director, Office of Defense Mobilization, and U. S. Representative Ed Edmondson of Oklahoma.

The last day of the convention featured field trips to several of the more important mining operations in the Salt Lake vicinity.

END

Take a piston. Its place of business in a CAT* Diesel Engine is in the "heat zone"—up to 3600° F. Here's where some substitute pistons soften, crack and burn through. But not a genuine Caterpillar piston. Copper, nickel and magnesium are alloyed with aluminum to maintain hardness and strength under these high temperatures. Yet, the special aluminum alloy retains the high weight-to-strength ratio and heat conductivity of aluminum. With a substitute, can you be *sure*? Better see your Caterpillar Dealer for parts you can trust!

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NSGA directors

(Continued from page 132)

distributed. Briefly, the tests show: (1) complete impracticability of meeting some of the strengths specified, (2) differences between high and low flexural-strength producing aggregates level off with drying of concrete, (3) extreme sensitivity to changes in moisture condition of beams and (4) for some aggregates, sawed specimens developed measured flexural strength about 25 percent less than molded specimens.

Prejudices against gravel in bituminous mixtures are being overcome rapidly with increased knowledge, improved techniques and designs. Use of gravel in this work has expanded greatly, and greater use in the future is expected.

The Asphalt Institute has recently issued new specifications and construction methods recommended for hot-mix asphalt paving. The new specs give more recognition to gravel; in fact, gravel is included in all types of hot mixes specified. In several respects, the new specifications are much improved over earlier ones.

The trend in aggregate specifications is toward more rigid limitations, especially with respect to deleterious particles. The industry is learning how to make better products, but some engineers seem to take the attitude, "If you have deleterious particles in your material, take them out." News on new methods of beneficiation—heavy media, elastic fractionization, etc.—has had some influence on specification writers. To date, these engineers are less realistic than before on the economic justification of allowing a reasonable amount of deleterious materials in the aggregate.

NSGA executive secretary, Vincent P. Ahearn, gave his usual excellent report to the directors on the status of several questions of interest to the sand and gravel industry. It looks as though Congress will make a full study next year on percentage depletion. That will be the time for the industry to bring forth evidence that the public policy on percentage depletion is good and that the sand and gravel industry can qualify. In that connection, industry materials are the only natural resource that is available and mined in every state in the nation.

The Baker Bill (H. R. 2391), a bill passed by the House to allow five percent depletion for producers on navigable rivers, may go through the Senate next year. If so, the rate may be effective December 31, 1956.

NSGA has objected to the Treasury Department's revision and reissuance of Bulletin F, which sets up a depreciation scale for equipment. The association made certain recommendations on this bulletin, but the department chose not to follow them. The association made its objections originally, and again has placed them before the department on the reissued bulletin. It would be well to watch the progress report on the objections, for it will be important to smaller producers, particularly, said Mr. Ahearn.

The joint meeting of NSGA-NRMCA was chairmanned by John W. Roberts, president of the latter group. Final arrangements for the 1958 convention and show in Chicago, and for future shows, came in for lots of discussion. As in the past, questions close to the industry will be discussed in convention papers by people from the industry at the next annual meeting. Since the show will be at two locations—Coliseum and the Conrad Hilton Hotel—special bus service on a three-minute operating schedule has been arranged to carry delegates between the two places.

The NSGA-NRMCA show is growing like Topsy. This year, 150 percent of the available space has been applied for. It is estimated that the show represents an expenditure by manufacturers of more than $1 million. This growth situation brought discussion on possible location of future shows. Invitations to the associations for holding future shows and conventions have been extended by Las Vegas, Nev., New York City, and Atlantic City, N. J. A further report will be made at the Feburary 1958 Chicago meeting.

Final plans for a retirement program for officials and employes of active member companies of NSGA-NRMCA have been drawn, and were fully explained. The new plan, as devised, makes available maximum flexibility and economy of operation, which are most desirable in any Treasury-approved retirement plan.

As explained by William Moore, who gave the report, best advantages of all such plans are incorporated into this one. Any member company can participate in the plan, regardless of the manner in which its retirement benefits are funded. Donald Shepherd and Co. are consultants for the plan.

That the associations' Group Insurance Plan is growing and is progressing in coverage also was reported by Mr. Moore. Four more companies have joined the group plan in the last 12 months, and the value of life and accidental death coverage is now near $11 million.

The engineering program, as out-

(Continued on following page)

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A COMPLETE REFRACTORIES SERVICE . . . *for Rock Products*

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Here are some Grefco refractories which should prove of particular interest to you:

RITEX MAGNESITE BRICK—a patented, chemically bonded basic brick for lining the burning zone of rotary cement, dolomite and magnesite burning kilns subjected to service too severe for high alumina brick linings. RITEX also has applications in many vertical (shaft) limeburning kilns.

STEELKLAD BRICK—a RITEX basic brick with steel plates already attached. It may provide major savings in your operation.

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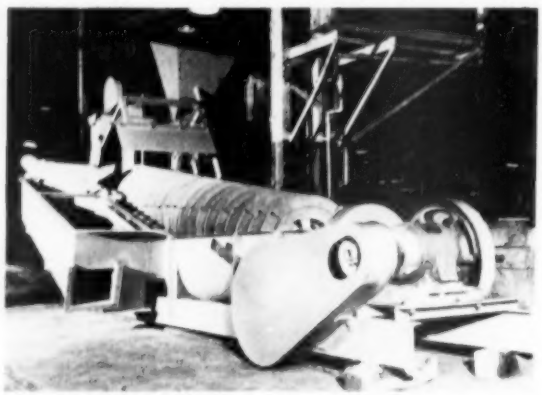

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A SUBSIDIARY OF THE MINE & SMELTER SUPPLY CO

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NSGA DIRECTORS

(Continued from page 141)

lined in the separate association meetings, were briefly reviewed by Stanton Walker, director of engineering. Much study has been given to a proposed outline of investigations for consideration by the Joint Research Committee. Since the present plan has been in operation for about five years, it is believed advisable to review that program and to revise it with an eye on maximum benefits to members. Specific suggestions for the new program were outlined by Mr. Walker.

Among several important labor, legislative and legal questions discussed by Mr. Ahearn in his report at the joint meeting was analysis of the Interstate Highway Program to point out the future importance of possible increases in truck taxes to provide added revenue that apparently will be needed. He also brought the group up to date on the status of Senate and House bills (S. 11 and H.R. 11) that propose to modify or cancel the right of manufacturers and producers to meet in good faith lower delivered price of a competitor. These bills are pending in both bodies. The Senate refused to pass H.R. 11 after the House had passed it with only three votes against, but the Senate committee has recommended the bill to that body. At this time, the House Judiciary Committee has not scheduled hearings on S. 11.

The McClellan Committee disclosures have accented a need to protect the individual employe against the action of unions. This is a serious matter, and there is a possibility that Congress will pass legislation that will go far beyond the Taft-Hartley Act in protecting the employe. On the matter of employer responsibility for honest administration of labor-management welfare funds, employers may be responsible under certain conditions. Courts have determined that such is the case if joint trustees of a fund let the union administer it and the union sets up rules of acceptability.

The meeting adjourned until February 1958 after a report on the arbitrator's award on issues arising in the 1955 strike in Los Angeles. No report from the arbitrator had been made at the time of the meeting, but a later report has indicated an important decision in favor of the 29 producing companies.

END

REGENT SAND & GRAVEL CORP., Buffalo, N. Y., has been incorporated with capital of $350,000. Incorporators are Alice M., Stabley H. and John M. Montfort.

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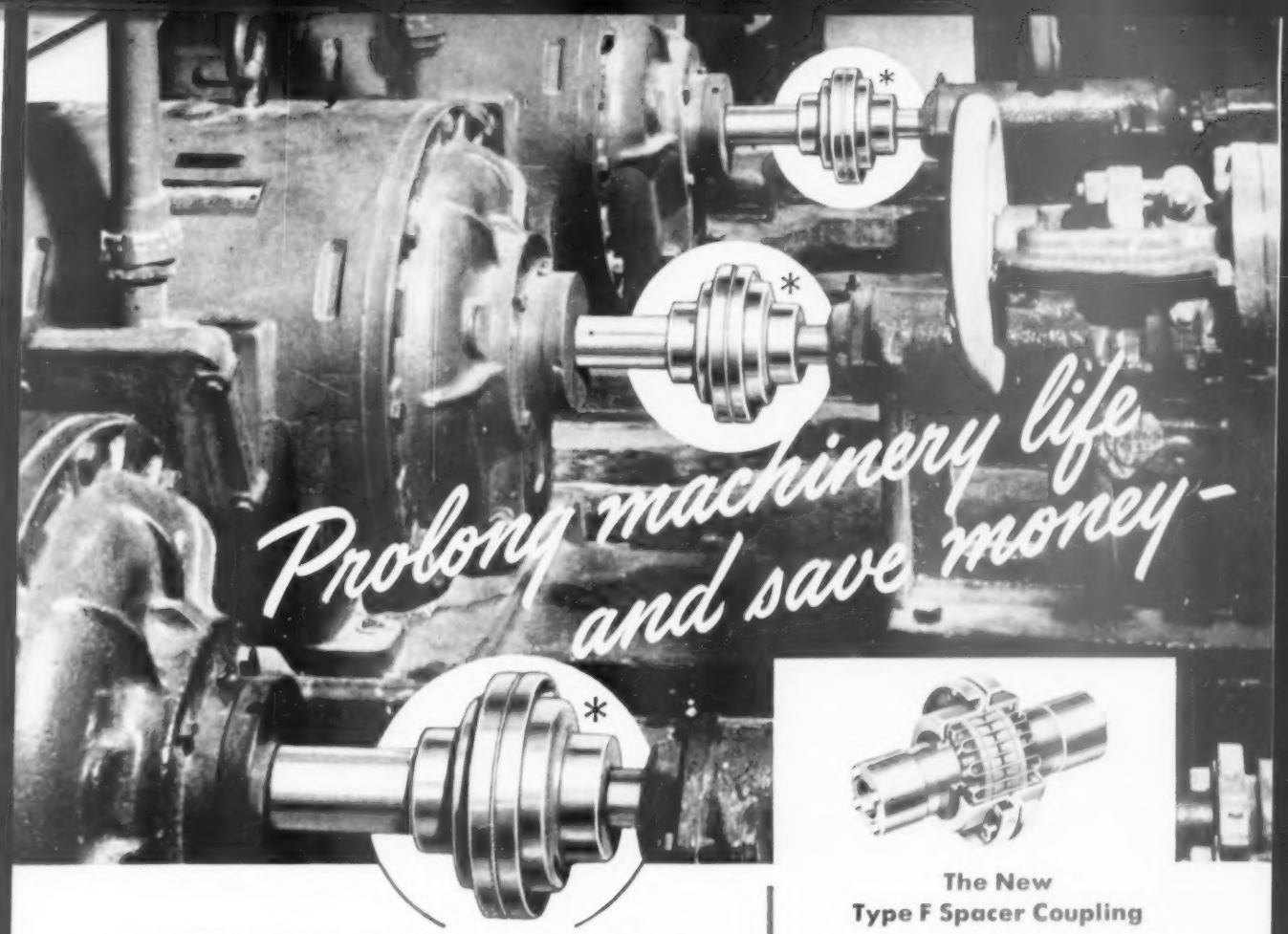

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* A single basic type—the famous Type F—fills 90% of all industrial application needs. It is versatile, efficient and economical. And—it is always available from factory, field or distributor stocks, in a wide range of sizes.

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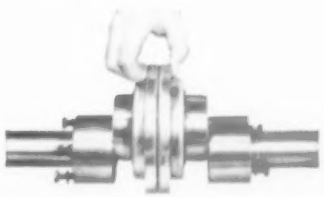
The New Type F Spacer Coupling

Here is a Steelflex coupling specially designed to permit fast, easy installation and removal in horizontal and vertical applications where it is impracticable to move the connected units—or where a space gap (up to 12 in.) is necessary.

Like all Steelflex couplings, the Type F Spacer gives long, trouble-free service and maximum 3-way protection for connected machinery: it provides torsional resilience to reduce shock and vibration; it accommodates parallel or angular shaft misalignment; it allows free (or limited) end float.

An outstanding feature of the Steelflex Spacer is that it can be installed or removed in one piece (see photo below); no dismantling or servicing of the coupling is required. Pump assemblies can be disconnected and removed without disassembling the coupling, without exposing working parts.



The Steelflex Spacer coupling is prelubricated at the Factory and can be installed, or removed and reinstalled, without disturbing the lubricant—a highly desirable feature.

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Measure CARSET JACKBITS by this yardstick (those who know do) — on any drilling job — in any type of rock. Compare their long-term performance with any other bit you've ever used. We are confident that the results will speak for themselves.

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ROCKY'S NOTES

(Continued from page 25)

"rock," but when an opening is made in this rock crust for a commercial purpose, the material produced is either ore, fuel (coal) or stone. Strictly speaking, in a professional sense, once quarried or mined it is no longer rock—crushed or in dimension shapes. It is a rock deposit only so long as it is an unexploited part of the earth's crust, but a stone deposit when commercially exploited.

The ordinary dictionaries were not of much help. "Stone" was variously described as "a piece of rock," and as "the material of which rock is made." Of course, the term stone has a much broader meaning than rock, since there are precious stones, bladder and kidney or gall stones, etc. The term is also used as a measure of weight in English literature. The question before the court therefore was what the term "stone" used in the Act included; whether rock gypsum was left out by intention or inadvertence, or on the assumption that the term stone was comprehensive enough to include rock gypsum.

There was certainly no reason to believe that rock gypsum was omitted by design, yet various kinds of stone, limestone, etc. were specifically mentioned, including as we have noted such unusual kinds as scoria and pumice. Most of us would have to go to a dictionary to find out what scoria is. That gypsum was not intentionally omitted seemed to be proved by the subsequent revision of the Act which gave gypsum producers a 15 percent depletion allowance. Scoria and pumice were mentioned apparently to prove that the term "stone" as used was really comprehensive.

Hard case for government: It must be admitted that the government lawyer and his expert witnesses had a tough case in attempting to prove that rock gypsum was not stone. It was difficult for this writer to get the drift of their argument, but apparently it hinged on the nature of gypsum deposits and the fact that rock gypsum as such was not used for building or construction purposes. One geologist attempted to show that no rock was entitled to be called a stone unless it was used in building or construction in the raw state as stone. Such a distinction, of course, would have eliminated limestone used to make lime and cement, sandstone used to make glass, and numerous other commercial uses for stone.

Rock gypsum, crushed and as exhibited in court, alongside limestone,

(Continued on following page)

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FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

★ FLEXCO Fasteners make tight butt joints of great strength and durability.
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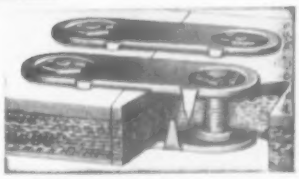

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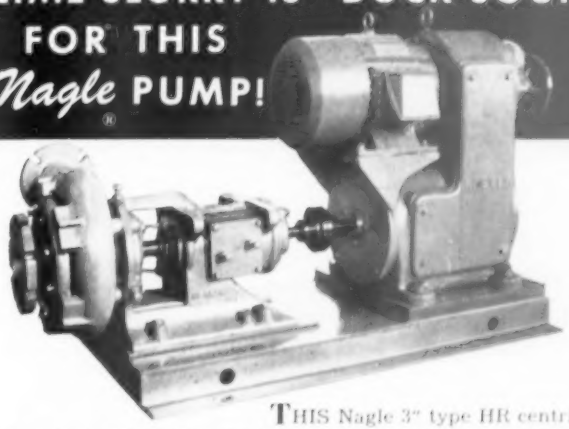

THIS Nagle 3" type HR centrifugal pump is giving outstanding performance at a large processing plant. It handles lime slurry. Variable speed drive for control of volume. The Nagle "H" series—of which the HR is one—is ideal for economically handling abrasive mixtures and slurries, corrosive and hot liquids. Can be placed above or below sump liquid level. Sizes from 1" to 10". Heads to 250'. Capacities to 4000 GPM. Send for data. Nagle Pumps, Inc., 1269 Center Ave., Chicago Heights, Ill.

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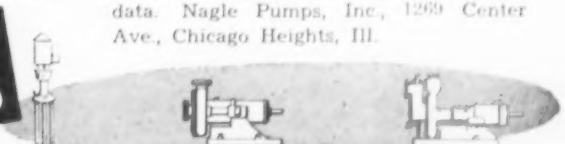

PUMPS FOR ABRASIVE AND CORROSIVE APPLICATIONS

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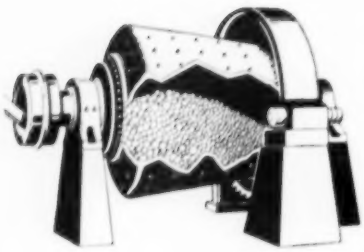

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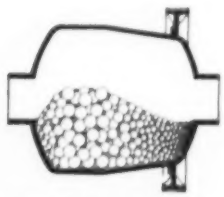
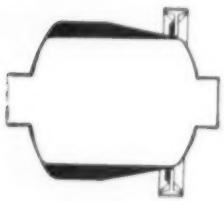
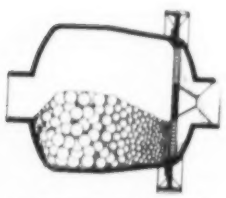


Correct ball segregation—large balls at feed end.



Greater volume than conventional mill.



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ROCKY'S NOTES

(Continued from preceding page)

of course, could not be distinguished from limestone by the layman. It was proved that it was bought and sold as crushed raw material, the same as limestone. It has, in the form of alabaster, actually been used in buildings as dimension stone. It has been used to surface roadways in gypsum quarries in lieu of a cheap local material. The geologists on the government side could hardly deny rock gypsum was rock, but was it stone?

The present writer testified to the effect that in the literature of commerce and industry the terms rock and stone are used interchangeably. In the eastern half of the country, for example, quarry operations are generally known as crushed-stone producers. On the West Coast, they are frequently known as rock and sand producers. Machinery men who sold equipment to these producers testified to the same effect. A crusher is variously referred to as a stone crusher or rock crusher.

Naturally, it was inevitable that the government lawyer should ask: "If rock and stone are the same thing, why wasn't ROCK PRODUCTS called "Stone Products?" The answer to that was easy. We did not name the book, and it might just as appropriately have been called "Stone Products." Indeed, to be scientifically correct, it probably could be argued that this book should be called "Stone Products." That however is an afterthought which of course we did not express at the time.

This is the end of our story. We are curious to know if any of our readers have ever made such a distinction between the terms "rock" and "stone;" if it were ever a factor in naming their companies. Incidentally, we forgot to mention that the gypsum producers won their case.

END

Authorize land auction for cement plant use

PINE TREE LUMBER CO., Escondido, Calif., has obtained authorization of the sale of a 171-acre tract of desert land near Plaster City, Calif., as a step toward developing what it describes as "tentative" plans for erection of a $9 million cement plant. A bill presented by Representative Utt of California authorizing sale of the Federal land was signed by President Eisenhower.

B. A. Sweet, a member of the Escondido firm, said that the company owns enough land in the area to construct a plant, and that sufficient raw materials are available. The Federal land has access to rail transportation.

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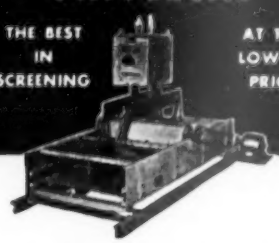

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NEW U.S. PATENTS

OLIVER S. NORTH

Recently issued patents on nonmetallic minerals*

Clay, expanded

2,803,555 — An improved oil well cement slurry comprised of portland cement, water, a small percentage of a pore sealer such as **bentonite** or polyvinyl alcohol, and a unicellular ceramic aggregate, particularly that **expanded clay** product commercially known as "Kanamite." (to R. C. Clark, Jr., H. F. Coffer and D. A. Shock. Assigned to Continental Oil Co.)

Gypsum

2,803,561—Process for making natural **limestone** or **gypsum** masonry products water repellent. The stone or plaster is surface treated with a water-soluble alkali metal salt of a hydrocarbon-substituted silane triol, and the coating dried. (to W. S. Kather. Assigned to General Electric Co.)

2,805,051—Improved apparatus for automatic mixing of **gypsum** plasters and cements. Self-cleaning means is provided to prevent clogging of apparatus and resultant loss of production time. Relatively small batches are mixed and delivered continuously. (to R. A. Miller)

Feldspar

2,805,771 — Electrostatic method for beneficiating **feldspar** ores without the addition of expensive preferential surface-wetting agents or chemical reactants. The ore is ground, heated, charged by a dry vibration method, and passed through an electrostatic field while still warm. (to J. E. Lawver. Assigned to International Minerals & Chemical Corp.)

Perlite

2,803,575—Method of manufacturing lightweight gypsum board, lath or sheathing. The core mixture comprises calcined **gypsum,** expanded **perlite** in the minus 8, plus 100-mesh range and a small amount of Vinsol resin or other air entrainer. Starch or dextrin and a small amount of ceramic or organic fiber can be added to the composition. (to W. C. Riddell and G. B. Kirk. Assigned to Kaiser Gypsum Co., Inc.)

Phosphate rock

2,803,531 — Efficient process for producing fluorine-free monoammonium phosphate, calcium nitrate and mixed nitrogen-phosphorous fertilizers from **phosphate rock.** (to G. G. U. W. Swensen and J. R. L. Swensen. Assigned to Norsk Hydro-Elektrisk Kvaelstofaktieselskab.)

2,804,383—Methods for making a complete concentrated mixed fertilizer from **phosphate rock** and potassium nitrate. (to R. D. Pike. Assigned to K. B. Ray and The Stamford Trust Co., executors)

Potash minerals

2,804,370 — Process for producing glaserite by heating a saturated brine of **langbeinite** ore and KCl to 25 deg. to 60 deg. C. The mother liquor is evaporated to obtain a mixture of salts, from which NaCl is separated and the potassium salts recycled with more langbeinite. (to W. B. Dancy and W. N. Stanley. Assigned to International Minerals & Chemical Corp.)

2,804,371 — Method of recovering potassium chloride from brines of **langbeinite** or **sylvinite**. Brine is agitated with an optimum amount of **gypsum,** and the solid phase syngenite filtered off. NaCl is precipitated and separated, and then the remaining solution is cooled to crystallize sylvite. (to W. B. Dancy and A. Adams. Assigned to International Minerals & Chemical Corp.)

2,804,373 — Magnesium oxide material, for example, a by-product from processing of **langbeinite** ore, is mixed with fuel and the mixture pelletized and heated to 2,400 deg. F. Impurities are volatilized and removed and a relatively pure magnesium oxide obtained. (to W. B. Dancy. Assigned to International Minerals & Chemical Corp.)

Fuller's Earth

2,797,211—Method for keeping rosin particles free flowing by admixing therewith finely ground **attapulgite.** Attapulgite is especially effective when the rosin will be subjected to unusually high temperatures, for example as high as 130 deg. F., whereas rosin particles treated with other clays, talc or diatomite fuse into a hard mass within 24 hours. (to R. D. Morin and R. E. Sharpe. Assigned to G & A Laboratories, Inc.)

2,799,718—As a means of improving the odor of a hydrocarbon stock to make it more suitable for use as a solvent in paints or the like, the heavy alkylate is contacted with **fuller's earth** containing less than about 7.5 percent volatile matter. Fuller's earth containing more than about 7.5 percent volatile matter is ineffective for this purpose. (to W. E. Scovill and J. G. Partch. Assigned to The Standard Oil Co.)

Mica

2,798,673—Method and apparatus for comminuting and delaminating **mica** by ultrasonic vibration. Apparatus comprises a transducer element, a rotating screen and means for feeding raw material and removing delaminated mica. (to E. C. Kunz and D. Ensminger. Said Ensminger assigned to said Eric C. Kunz.)

Wollastonite

2,786,758—An improved paper pigment can be made by reacting either precipitated calcium silicate or the natural calcium silicate, **wollastonite,** with a solution of aluminum sulfate and calcium sulfate. The product is filtered, washed, dried and milled to produce a fine, free-flowing, soft powder that is relatively light in density. (to L. B. Taylor. Assigned to Columbia-Southern Chemical Corp.)

2,786,776 — An improved reinforcing pigment for rubber compositions can be manufactured from either precipitated calcium silicate or the natural calcium silicate, **wollastonite,** by reacting it with a water-soluble aluminum salt, for example aluminum chloride. The resulting aluminum silicate product is filtered, dried, and pulverized. (to E. M. Allen. Assigned to Columbia-Southern Chemical Corp.)

(Continued on page 150)

*Copies of United States patents are available at a cost of 25 cents each from The Commissioner of Patents, Washington 25, D.C. For convenience, coupons, each good for one copy of any patent, may be purchased from that official at the rate of $5.00 per 20-coupon pad or $25.00 per 100-coupon pad.

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at RINKER ROCK CO., BAKERSFIELD, CALIF., an EAGLE FINE AGGREGATE WASHING-CLASSIFYING-DEHYDRATING SECTION Does This:

The EAGLE 20' Single Water Scalping-Classifying Tank at Rinker Rock Co. is giving them splendid classification. The table below shows the high percentage of fines recovered by the snap action of the automatic bleeder valves on the tank.

The classified material is washed and dehydrated in an EAGLE 36" dia. x 25' Single Screw Fine Material Unit.

Finished product meets rigid specifications for concrete materials.

To be sure that *your* sand and gravel meets specifications, bank on Eagle's 85 years of experience, Eagle's competent engineering staff and Eagle's nationwide network of factory-trained distributors. Make contact today.

SCREEN MESHES	3/8"	#4	#8	#16	#30	#50	#100	#200	PAN
PIT DEPOSIT 1. % Retained Each Sieve	0	9.2	14.0	23.5	24.6	13.0	6.0	3.4	6.3
2. % Passing Cumulative	100	90.8	76.8	53.3	28.7	15.7	9.7	6.3	0
3. Bureau of Reclamation Specs. % Retained Each Sieve	0	0—5	5—15	10—25	10—30	15—35	12—20	-100 plus pan 3—7	
4. Product Made Meeting Above Specs.	0	1.0	9.0	19.0	26.6	25.5	13.6	5.3	
5. State of Calif. Div. of Hwys. Specs. % Passing Cumulative		90—100	65—90	45—70	25—45	10—20	2—8	-200 plus pan 0—4	
6. Product Made Meeting Above Specs.		97.7	83.5	59.3	29.0	12.0	2.7	0.5	
7. State of Calif. Architects Specs. % Passing Cumulative		85—100	75—90	55—75	30—50	8—20	6—7	0—3	
8. Product made meeting above Specs.		99.0	90.0	71.0	44.4	18.9	5.3	0	

Also a good mason sand is made from either line 6 or 8 product by simply deleting top size plus No. 8 mesh, which is required by local trade.

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ENGINEERS • MANUFACTURERS

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137 HOLCOMB AVE. • DES MOINES, IOWA

NEW U. S. PATENTS

(Continued from page 148)

Aggregates

2,803,445—Apparatus for preventing bridging action of dry, particulate material, such as **crushed stone, sand, gypsum, limestone, phosphate rock** and the like during transfer and transportation. (to O. J. Borrowdale)

2,806,277—Process for forming strong insulating walls and ceilings. An inner mold form is set up and coated with a **gypsum**-exfoliated **vermiculite** plaster. An outer mold then is placed and reinforced and a lightweight pour of **pumice** or vermiculite concrete admitted to the wall cavity. When the concrete is hard, forms are removed. Alternatively, both molds may be coated, and the cavity filled with loose pumice or exfoliated vermiculite aggregate. (to D. Hand and W. R. Swanson; said Swanson assigned to said Hand)

Cement

2,804,393—**Alumina cement** or **portland cement** is used in a sealing compound which is chemically impervious to anhydrous ammonia and may be utilized to advantage for sealing underground cavities in which anhydrous ammonia is stored. (to F. Veatch. Assigned to The Standard Oil Co.)

2,804,394—Nonpeeling concrete paint composition in dry powder form comprises ammonia alum, salt, calcium stearate, **lime,** magnesium silicate and white **portland cement,** together with a mixture of calcium magnesium carbonate and calcium magnesium silicate. The latter mixture is said to be found in the natural state in large deposits of a rock found in Wisconsin. (to R. L. Waide. Assigned to Marvin V. Screws)

2,805,204—An absorbent sweeping composition for removing oil, grease, etc., from floors comprised of **portland cement,** a pigment, and a large proportion of weathered flue dust from cement plants. The mixture of materials is wetted, allowed to set, dehydrated in a rotary dryer, and screened through 5-mesh. Oversize is crushed and rescreened. (to G. H. Adams, Jr.)

2,805,719—Improved high-temperature oil-well cement comprised of **portland cement, silica flour** and water. This cement continues to increase in strength over a relatively long period of time. (to F. M. Anderson. Assigned to Halliburton Oil Well Cementing Co.)

2,805,827—Device for discharging regulated quantities of water or other liquid into a ball mill being used for wet grinding **portland cement** raw materials. The device can be easily installed on mills already in service or as built. (to S. C. Pierce)

Asbestos

2,803,346—Apparatus and method for separating **asbestos** fiber from crushed ore. A shallow bed of the crushed ore is vibrated along an air-permeable deck. Air admitted into the material from below causes stratification, with the opened fiber bundles on top. The "floating" fibers are drawn off by air suction above the deck, and the remainder of the material is discharged continuously from the end of the deck. (to D. Weston and A. R. MacPherson)

2,804,908—Method of treating **asbestos** sheet material with aluminum phosphate to produce a hard, dense electrical insulating product having low power factor, low dielectric constant and high dielectric strength. Alternatively, a mixture of orthophosphoric acid and asbestos fiber may be used instead of asbestos sheet. (to L. W. Spooner and G. A. Joyner, Jr. Assigned to Westinghouse Electric Co.)

(Continued on page 152)

"Our hammer mill proved it—

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Colmonoy No. 1 hard-facing stands up under rough conditions involving impact and abrasion. Its cost is moderate and it welds easily. Great on equipment like dozer blades, shovel teeth, crusher rolls, and conveyor parts.

The new low-hydrogen coating provides excellent arc stability and makes weld cleaning between successive passes unnecessary. You can use it on vertical surfaces, too. Colmonoy No. 1 deposits are hard: 58 to 63 Rockwell C.

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Available as 1/8, 5/32, and 1/4-inch diameter electrodes (DC), in 10 and 50 lb. metal containers.

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Powered by a 300 h.p. engine with 10-speed transmission, this 22-ton Rear-Dump Euclid has a top travel speed of 32 m.p.h. with full payload . . . one of the reasons "Eucs" haul more tonnage at lower cost.

The limestone quarry and plant of Nelson Crushed Stone Ltd., north of Hamilton, Ontario, is one of Canada's newest and most modern operations. This stone plant, with a capacity of more than 500 tons per hour, was designed for maximum efficiency and flexibility—it can produce virtually any size stone.

Three 22-ton Rear-Dump "Eucs", loaded by a 2½ yd. shovel, haul dolomite to a primary crusher about ¼ mile from the face. Equipped with quarry bodies having flared sides that facilitate loading and minimize spillage, these "Eucs" have 300 h.p. engines and 10 speed transmissions.

Rear-Dump Euclids are standard off-the-highway hauling units in mines and quarries because of their ability to stay on the job year after year with low maintenance cost. For a production and cost estimate on your operation get in touch with your Euclid dealer . . . there's no cost or obligation.

Rugged construction of the body and frame enables "Eucs" to withstand the impact of loading rock and other heavy excavation with large loading equipment. Here a 2½ yd. shovel loads 22 tons of dolomite for haul to the primary crusher.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

NEW U. S. PATENTS

(Continued from page 150)

Miscellaneous

2,801,183—Method of making highly refractory materials of a quality equivalent to fired sillimanite. Kaolin is heated to a temperature in the range 600-750 deg. C. until all crystalline structure has disappeared. The material then is cooled and ground to minus 200 mesh, and about 5 percent of ground, raw, natural **sillimanite** added thereto. The mixture is molded under pressure, and the shapes fired to 1,500 deg. C. until crystallization of mullite is complete. (to M. Kantzer. Assigned to Societe Anonyme des Manufactures des Glaces et Produits Chimiques de Saint-Gobain, Chauney & Cirey)

2,803,115—A refrigerant holdover package that is suitable for re-use through repeated freezings and thawings comprises **borax,** water, paraformaldehyde and a suitable gel substance, such as **bentonite.** (to J. C. Shepherd)

2,803,171—Method for making a vapor-impermeable paper or paperboard. The film which is applied to the wet plies comprises wax, a solid homopolymer of isobutene or similar substance and an emulsifying agent such as **kaolin** or **ball clay.** (to R. H. Cubberley and M. B. Dell. Assigned to The Patent & Licensing Corp.)

2,804,398—A fireproofing composition for coating wood structural units comprises 60 percent sodium silicate solution, 5 percent of 7R asbestos fiber and 35 percent mineral filler, such as **slate** dust, fibrous **talc, limestone, mica** or expanded or unexpanded **perlite.** (to R. M. Hooks. Assigned to Southwestern Petroleum Co., Inc.)

2,804,437 — **Diatomite** is the preferred bulking agent in this anti-sweating coating composition. A smaller percentage of a fibrous material, preferably **asbestos,** also is used. (to S. Katz and S. Kut. Assigned to Pearl Varnish Co., Ltd.)

2,804,438 — A reinforced molding composition comprises glass fiber, resin, catalyst, **whiting** and any of various fillers, including **china clay, portland cement, diatomite** and **gypsum.** (to L. P. Biefeld and R. F. Shannon. Asgd: Owens-Corning Fiberglas Corp.)

2,805,769—Method for electrostatic beneficiation of nonmetallic minerals, such as **phosphate rock, sylvinite, feldspar, barite, fluorspar, lepidolite, spodumene, brucite, magnesite, kyanite** and **wollastonite.** The finely ground material is heated to at least 150 deg. F. and vibrated in a grounded conductive metal trough to differentially charge the component particles of the ore. The material then is allowed to fall free through a series of electrostatic fields. (to J. E. Lawver. Asgd: International Minerals & Chemical Corp.)

2,805,770—Electrostatic method for concentrating desired mineral fractions of **phosphate ores, sylvinite, feldspar, fluorspar** and other multicomponent nonmetallic ores. Following a preliminary electrostatic separation, the desired mineral fraction is agitated with a material capable of exchanging electrons with the mineral particles—usually a coarse, carefully sized reject from the initial separation, such as halite from sylvinite ore, silica from pebble phosphate, etc. After the mineral particles have been intimately contacted with the recovered reject material, the coarse reject is screened out, and the now charged concentrate subjected to one or more passes through electrostatic fields as freely falling bodies. The entire process is conducted at elevated temperatures. (to J. E. Lawver. Assigned to International Minerals & Chemical Corp.)

END

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Years of experience in the Multiwall field, backed by vast paper resources and extensive manufacturing facilities, assures you a *practical* answer to your packaging problems. Let a Raymond Representative show you how with a Raymond Multiwall!

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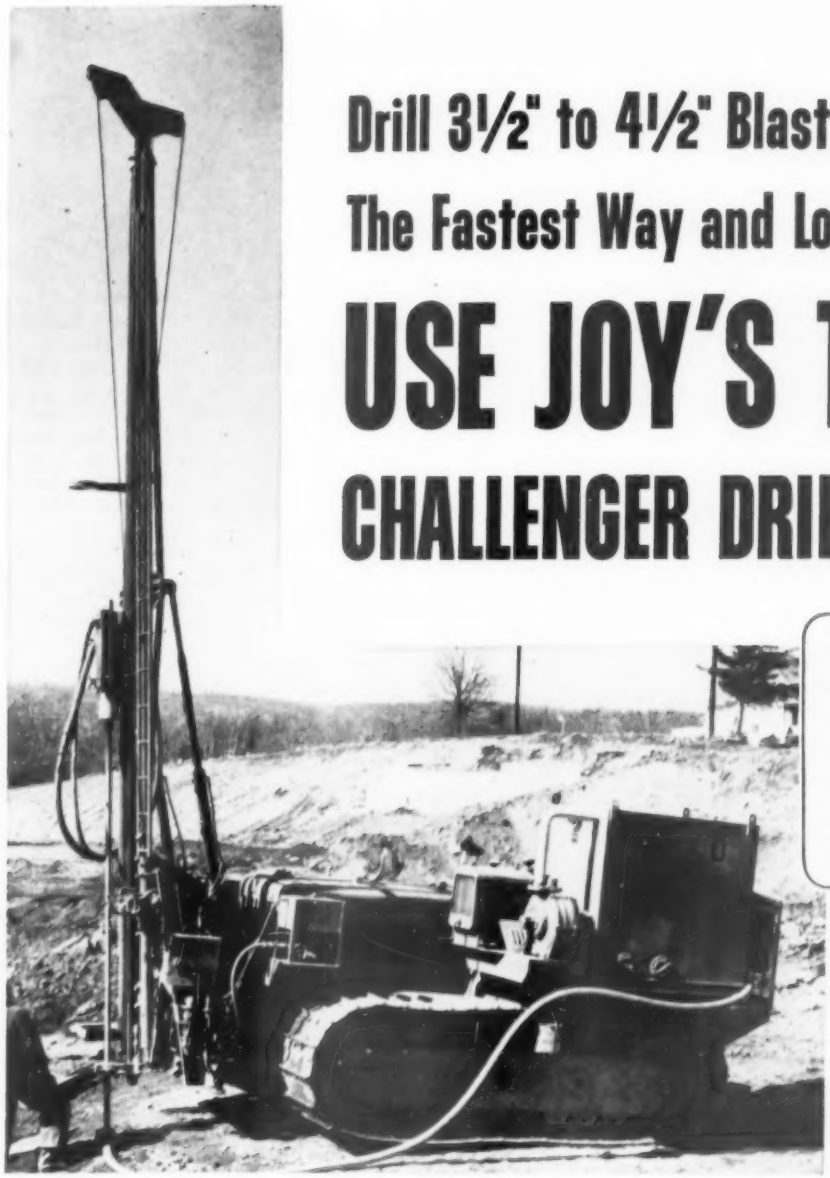
The Fastest Way and Lower Your Costs
USE JOY'S TWM-3
CHALLENGER DRILL PACKAGE



Easy to mount on a wide variety of chassis . . . drills 3½" to 4½" holes to 50 ft. depth or more

Package consists of:

- JOY TM-500 DRILL AND MAST
- AIR MOTOR-DRIVEN CHAIN FEED
- AW-80 AIR WINCH FOR HANDLING STEELS
- CONVENIENT MOUNTING BASE AND CLAMPS

This proven percussion blast-hole drill package, pioneered by Joy, replaces three or four wagon drills . . . *and still boosts the tonnage of broken rock per shift.* The rugged heavyweight drill, the most powerful in its class, sinks 3½" to 4½" holes to depths of 50' faster than any other machine of its type. It fits to a crawler-mounted tractor, truck, or any mobile chassis that will support its weight. You can select used equipment for mounting the rig, keeping initial cost low. Mast and levelling jacks operate from double-acting, hydraulically controlled cylinders. Operating range from 15° to either side of vertical and 15° forward of vertical permits quick setup and hole spotting. Get the specs and full story on this mobile, money-saving rig by writing to ***Joy Manufacturing Company, Oliver Bldg., Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

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PORTABLE COMPRESSORS

WAGON DRILLS

ROCK DRILL BITS

HAND-HELD ROCK DRILLS

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NEW MACHINERY

Rock mover has rated payload capacity of 64 tons

NOW COMING OFF THE PRODUCTION LINE is the 803-B Kenworth rear-dump semitrailer, with a rated payload capacity of 64 tons or 40 cu. yd. struck. The new 803-B's gross vehicle weight rating is 228,000 lb. Powered by a single 12-cylinder diesel engine, it will be offered with either the 400 or the 600-hp. version of this engine. The 803-B tractor has front and rear axles of Carcometal, a special high-strength cast steel. Front axle capacity is 50,000 lb. and rear axle capacity is 100,000 lb.

Measuring 41 ft. 11 in., the 803-B has a turning radius of 37 ft. with a turning angle of 30 deg. The tractor wheelbase is 168 in.

The telescopic hoist, a patented Kenworth design, is single-acting, two-cylinder, three-stage, straddle-mounted. The new one-man offset cab offers maximum direct vision in all directions, and is enlarged in all dimensions. *Kenworth Motor Truck Co., Seattle, Wash.*

Enter 100 on Reader Card

Phase converter is available in five sizes

KATO ENGINEERING CO., 1415 First Avenue, Mankato, Minn., has announced the Kato phase converter, available in five sizes ranging from 500 to 2,500 watts.

Weighing 39 lb., the converter changes single phase, 115-v. 60-cycle ac. to three phase, 230-v. 60-cycle current. The aluminum alloy frame houses capacitator starter as well as both output and input receptacles, and is about 10 in. high without carrying handle. Intake and exhaust air vents are located in lower halves of end-bells, making the converter drip-proof.

Enter 101 on Reader Card

Circular storage bins

THE FAIRFIELD ENGINEERING CO., Marion, Ohio, has introduced a new line of elevated circular storage bins of 30 to 200 tons capacity, fitted with gates for discharge into trucks.

The new CB series of Fairfield bins are from 12 to 20 ft. diam., have drive-through widths of 12 ft. 6 in. to 20 ft., and are mounted on 8-ft. legs resting on concrete piers. Larger sizes are available on special order.

Single-quadrant manually operated gates controlled from ground level are standard; double-quadrant air-operated gates are optional. The bins are expected to have use in supply yards for building materials, and for handling sand and other bulk materials.

Enter 102 on Reader Card

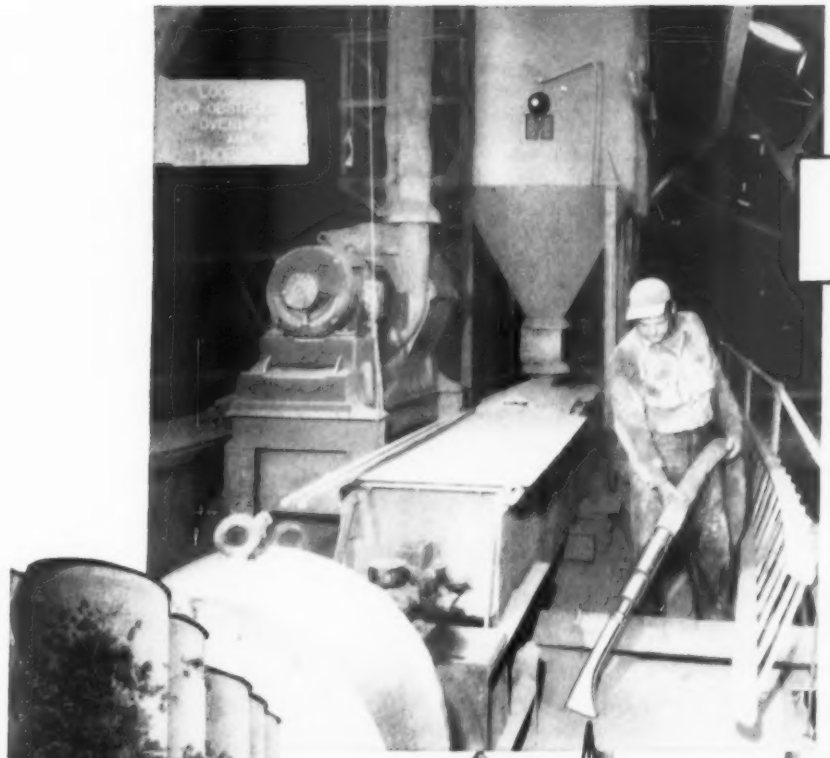
All-weather tractor cab

A STURDY ALL-WEATHER CAB has been designed for use on International, Ford, Fordson Major, Case, Minneapolis-Moline, John Deere and Oliver tractors. The cabs are designed to fit either the bare tractor, or tractors equipped with most combinations of front and rear-mounted equipment, such as loaders, backhoes, dozers, scrapers, cranes or trenchers. Operating controls may be mounted inside the cab to allow full use of the tractor in all weather, the year around.

The cab fits tightly to the tractor. The frame is constructed of 12 and 14 gauge steel and mounted to withstand vibration and hard usage. Side panels that may be either rolled up or snapped off in warm weather, are of fire, water and mildew resistant canvas with heavy-duty vinyl plastic windows. *The J. Frank Sims Cab Co., Box 98, Holden, Mass.*

Enter 103 on Reader Card

(Continued on page 157)



HOW A U.S.HOFFMAN STATIONARY VACUUM CLEANING SYSTEM CONQUERED COSTLY CEMENT DUST PROBLEMS

HOFFMAN INSTALLATION PAYS ITS WAY AT THE **LOUISVILLE CEMENT CO.**

before

a U.S.Hoffman stationary vacuum cleaning system was put into operation at the Louisville Cement Co., plant in Speed, Indiana, these were among their cement dust problems:

1—**Considerable spillage occurred in loading with little or no salvage.**

2—**Three to four men were required to clean up hopper cars after a day's loading.**

3—**Broom sweeping wasted usable cement and created a health and safety hazard.**

4—**Efficiency was impaired by poor housekeeping resulting from dust ridden plant area and RR sidings.**

5—**Manual removal of cement from overloaded hopper cars and trucks caused costly delays.**

after

the installation of the U. S. Hoffman stationary vacuum system efficiency was increased 100% and these material, time, and labor savings took place:

1—**Cement previously lost in spillage was reclaimed as a saleable product.**

2—**One man and a U.S.Hoffman stationary vacuum system handled the entire cleaning job.**

3—**End to broom sweeping eliminated health and safety hazard, saved cement.**

4—**Improved housekeeping at RR sidings and in plant area increased efficiency and production.**

5—**Savings resulting from speedy vacuum system removal of excess cement alone more than paid for the installation within a year.**

Hoffman INDUSTRIAL VACUUM SYSTEMS Custom Designed For Your Needs

U.S.Hoffman air appliance engineers will be glad to make a survey of vacuum cleaning possibilities in your plant. No obligation of course. Write for Catalog AB-100.

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Other industrial equipment — **PNEUMATIC CONVEYING DIVISION** — Custom Built Systems — **INDUSTRIAL FILTRATION DIVISION,** Machine Tool Coolant Clarifiers — Solvent Recovery Systems — Oil Conditioners.

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Thermoid Conveyor Belting ...pays on the long haul!

Here's belting with real stamina! Belt carcass and cover are welded together by Thermoid's exclusive impregnation process. With Thermoid's specially woven, finest quality reinforcement it troughs easily, withstands shock loading as no ordinary belt can—yet it is flexible enough to avoid internal heat build-up. The results of this unusual combination are years and years of trouble-free service on the toughest jobs.

There's a Thermoid Conveyor Belt made expressly for your materials handling requirements. For example: *Thermoid HT* for extremely abrasive materials such as quartz ores, trap rock and coal . . . *Thermoid A* for highly abrasive materials such as slag, lime, rock, ore, ashes, hot cement and crushed stone . . . *Thermoid C* for moderate abrasives such as sand, loam, gravel.

Your Thermoid distributor will help you select the conveyor belt that's exactly right for your needs.

Cut costs with Thermoid Multi V-Belts . . .

. . . and Thermoid Hose.

Thermoid

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NEW MACHINERY

(Continued from page 154)

Weight meter

THE GUESS WORK HAS BEEN TAKEN out of dump truck loading with the Freewayer, new hydraulic meter for weighing exact payloads. A patented gauge produced by the Aluminum Body Corp., the Freewayer is simple to operate.

It takes about two hours to install in the cab, it fits the hoist on any dump truck and can be used on semi-trailers. The Freewayer is at the control of the driver and weighs as the truck loads by means of the hydraulic pressure of the hoist. *Aluminum Body Corp., Los Angeles, Calif.*

Enter 108 on Reader Card

Continuous cable clamp

A QUICK WAY OF ATTACHING A LOAD to a continuous cable is provided by a new clamp which is being used for car pulling, barge moving, rigging or any job where a load must be connected to a line.

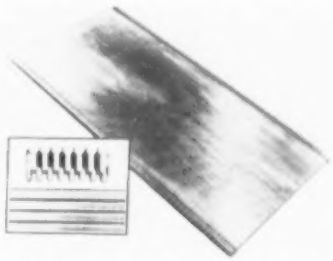
The three-part fitting consists of a wedge clamp, wedge, and cable clip. To attach the load to the cable, the wedge clamp is placed on the cable with the small end in the direction of the cable pull. The wedge is then inserted. The cable clip passes through the eye of the wedge and locks it in place. A clevis and pin are frequently used to attach the load to the clamp. The clamps are manufactured for rope sizes from 3/8 to 1 1/4 in. *Sauerman Bros., Inc., 630 S. 28th Ave., Bellwood, Ill.*

Enter 109 on Reader Card

Heavy-duty preparation screen

WEDGE-WIRE CORP., Wellington, Ohio, announces the "Migh-Tee" Kleenslot screen for dewatering, screening, washing, extracting, filtering and sizing operations. It also is adaptable to vibrator applications. Incorporating features of the Wedge-Wire line, the Migh-Tee Kleenslot has a new profile to provide added wearing surface.

The new type screen can be interchanged with other types and kinds of Kleenslot screens without mechanical changes. It is constructed of high abrasion resistant stainless steel. There are two sizes: the G187 has a wire .437 in. high and .187 in. wide, with standard opening between wires of .010 in. and up, the GB187 has a wire .500 in. high, .187 in. wide, with standard opening between wires of .010 in. and up.



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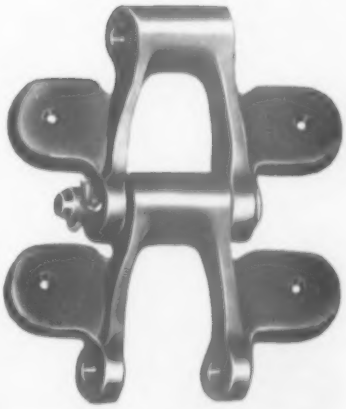


Conveyor chain

ROBERT A. MAIN & SONS, INC., 257 Pascack Road, Paramus, N.J., has brought out a pin-type forged-steel conveyor chain, each link made with a wing attachment. Designed to stand hard wear and shock, the chain can be furnished for acid or heat conditions.

Wing attachments on each link permit easy assembly of wood or metal conveyor slats. The chain can be used in single or multiple strands, to supply sprockets or complete aprons.

Enter 112 on Reader Card

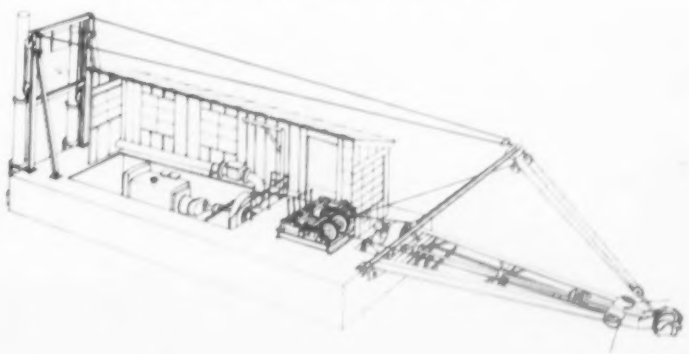
Portable dredge has 8-in. centrifugal pump

PORTABILITY HAS BEEN COMBINED WITH HIGH PERFORMANCE characteristics in a new 8-in. dredge, Series 130H, designed by Ellicott Machine Corp. Part of the Ellicott line of hydraulically operated "Dragon" model dredges, the new unit has a rated output of up to 85 cu. yd. per hour.

Heart of the dredge is an Ellicott 8-in. heavy-duty centrifugal suction pump powered by a 6-cylinder diesel engine having a continuous rating of 142 shaft hp. This main diesel engine also powers the hydraulic pump for supplying power to the cutter and winch motors.

The new dredge can be used for all types of general dredging work. It will pump mud, silt, sand and other light sedimentary materials from a maximum digging depth of 17 ft. below the surface of a body of water.

Of welded steel construction, the hull consists of two tank type pontoons, the assembled size being 32 ft. long by 14 ft. wide by 4 ft. deep. The dredging machinery is mounted on the main pontoon and can be handled as a single unit. The removable side hull pontoon tank is attached to the main tank for trim and stability. *Ellicott Machine Corp., 1611 Bush St. Baltimore, Md.*



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(Continued on page 160)

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ATTEND YOUR CONVENTIONS
In Print and In Person

TWO BIG ISSUES IN ONE
—COMING IN JANUARY

1. CONVENTION PREVIEWS

NATIONAL SAND AND GRAVEL ASS'N NATIONAL CRUSHED STONE ASS'N
NATIONAL READY-MIX CONCRETE ASS'N

- **Advance roundup of convention news**
- **Complete programs**
- **News of convention speakers and chairmen**
- **List of exhibitors with attending personnel**
- **Descriptions and illustrations of new products**
- **Floor plans with exhibits located**

Here's your opportunity to get convention information in advance . . . stimulate your interest, see in print and pictures all three in the January ROCK PRODUCTS. Preview the exhibits and the meetings in order to organize your time at the Conventions. Know who is displaying equipment or speaking on ideas of importance to your business.

ROCK PRODUCTS comprehensive preview of convention activities and exhibits is must reading for progressive producers interested in new ideas, new methods, new efficiencies. Get the product and meeting information you need in advance. Convention and Exhibit time is profitable when planned in advance. Consult the January ROCK PRODUCTS.

Get double mileage from your Convention.
Know where it will pay you to spend your time.

2. PREVIEW AND FORECAST

- **Previews and forecasts for the five leading industries. In cooperation with the leading associations serving the industries.**
- **Construction: how it fared in 1957—prospects for 1958.**
- **What leaders say: Association heads look ahead.**
- **What industry says: Discussions on production, efficiency, competition, prices, costs, research, etc.**

Your recognized authority will be more useful than ever before. The most reliable source of market activity and its effect on your industry. ROCK PRODUCTS first-of-the-year annual evaluation of the rock products industries. Opinions of large and small producer, and—for the first time—the heads of your associations will present their interpretations of trends and demands. This will be your guide to 1958.

BE SURE THAT YOU RECEIVE AND READ YOUR JANUARY ROCK PRODUCTS

START THE YEAR WITH A SUBSCRIPTION TO ROCK PRODUCTS FOR EACH KEY MAN

—IT'S THE KEY MAN'S MAGAZINE

VISIT WITH US AT THE CHEMICAL SHOW

Booth 446, *Second Floor* NEW COLISEUM, NEW YORK

Once again, it will be a pleasure to welcome you in our booth at the Chemical Show . . . to talk over your problems on conveying, feeding, and cooling of dry pulverized and granular materials, and your requirements on air compressors and vacuum pumps.

Sales engineers will be in attendance to discuss thoroughly any problems you may have, on which we might be of some assistance to you.

If you are presently handling dry pulverized or granular materials into, through, or out of, your plant, stop in and talk it over with one of our representatives . . . get the full story on harnessing air to move materials. It may well pay you plenty in terms of higher, sustained production at reduced cost.

EQUIPMENT DESIGNED AND BUILT *by* FULLER

Fuller-Kinyon, Fuller-Fluxo, Airveyor® and F-H Airslide® conveying systems • Fuller Airmerge Blending System • Fuller Rotary Compressors and Vacuum Pumps • Sutorbilt Rotary Positive Pressure Blowers . . . Gas Pumps . . . Vacuum Pumps • Fuller Preheater—Humboldt Suspension Type • Fuller Inclined-Grate Cooler • Fuller Horizontal-Grate Cooler • Fuller Dry Pulverized-Material Cooler • Fuller Rotary Feeders and Rotary Valves • Material-Level Indicators • Lehigh Induced-Draft Fans • Motion-Safety Switch • Aeration Units • Slurry Valves

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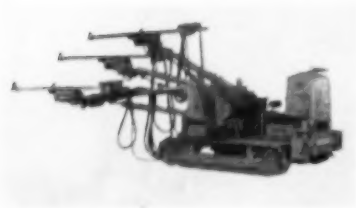
(Continued from page 157)



Crawler-mounted rock drill

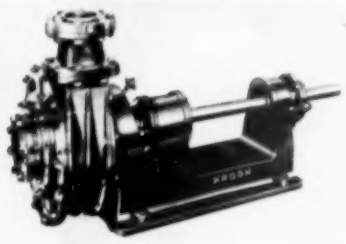
GARDNER-DENVER CO., 100 Williamson St., Quincy, Ill., has announced the new Model JMT "Mobiljumbo," a self-propelled and crawler-mounted rock drill that features fingertip control of the drills at the operator's position.

The JMT is available with crawlers powered by either diesel-hydraulic drive or by five-cylinder radial air motors. Two or three hydraulic booms are furnished. Rock drills and feeds may be selected to suit the ground being worked.

An air motor drives the hydraulic pump for remote control of the boom and for drill positioning by one man; an electric generator, air motor driven, supplies three lights that flood the working face and the entire drilling operation.

Enter 104 on Reader Card

Sand and slurry pumps



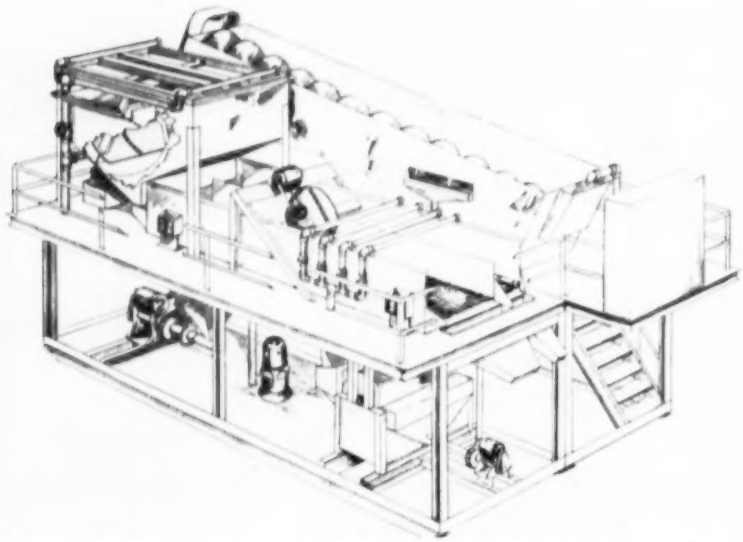
KROGH PUMP & EQUIPMENT CO., INC., 515 Harrison St., San Francisco 5, Calif., has introduced Krogh Model 600, a heavy-duty sand and slurry pump. It is equipped with wear-resistant liners, replaceable and interchangeable with either hard metal or rubber. This flexibility is said to make the pump suitable for any type of slurry pumping problem, and to allow it to accommodate changes in operating conditions without pump modifications or installation changes.

These pumps are built for pumping sand, slurries or gritty water on flotation processes, cyclone feed, ore plant feed, refuse of tailings disposal, ash handling, slag disposal, thickener underflow, sand pit transfer and dredging as well as many special abrasive pumping jobs.

They range in size from 2 to 8 in. with capacities from 20 to 2,000 gpm. up to 100 ft. head or more.

Enter 106 on Reader Card

Unitized HMS plant includes four sections



A HEAVY MEDIA SEPARATION plant which is preassembled at the factory into four units has been introduced. These units or block sections provide for easy assembly at installation site and can be readily transported.

The new Eagle HMS plant features the OCC separatory vessel. The large productive pool area of the OCC vessel plus constant hydraulically actuated raking mechanism provides maximum separation of deleterious matter and high ouput of recovered aggregate. Capacity of the plant ranges from 25 tph. and up.

Other features of the plant include an improved screw densifier of Eagle design, a magnetic separator, ground level sump, and a conveniently located control panel on the upper deck. Eagle Iron Works is prepared to conduct laboratory tests on representative deposit samples, to determine separation that can be expected. *Eagle Iron Works, 137 Holcomb Ave., Des Moines, Iowa.*

Enter 105 on Reader Card

Expanded truck line

AN EXPANDED, WIDELY DIVERSIFIED line of trucks featured by a rugged new 348-cu. in. V8 of 230 hp., many chassis improvements, and more powerful and durable sixes and V8's is announced by Chevrolet Motor Division. Scheduled for display at dealer showrooms nationally, the new truck line lists 12 new models, for a total of 128.

An innovation in the 1958 line is the assigning of names to each of the three weight classifications. They are: The Apache—light-duties with GVW. ratings up to 9,600 lb., and available on six different wheelbases; The Viking—medium-duties, available on 12 wheelbases with GVW. ratings up to 21,000 lb.; and The Spartan—heavy-duties with GVW. ratings up to 25,000 lb., on nine wheelbases.

The 1958 Chevrolet Spartan heavy-duty tandem is illustrated. The new 348-cu. in. 230-hp. engine is designed for truck service with sodium-cooled exhaust valves, heavy-duty bearings, valve rotators, and Silichrome exhaust valve seat inserts. A feature is the machined combustion chamber located in the top of the cylinder bore for improved combustion efficiency. It also permits central location of the spark plugs for shorter flame travel. The new engine is standard in the 90 and 100 series. Appearance changes include dual headlamps and redesigned grill, fenders and hood. *Chevrolet Motor Division, General Motors Building, Detroit 2, Mich.*

Enter 107 on Reader Card

(Continued on page 162)

WATCH FIRESTONE WHERE HEAVYWEIGHTS HUSTLE BIG JOBS!

Firestone Rock Grips fit your machinery to any job condition

Firestone Tubeless Rock Grips let you roll the big loads out ahead of schedule. Two great tread designs combine traction and toughness to move your heavyweights over any terrain without changing tires to match each job. You get the *full flotation* you need for sand and soft stuff. You get the *armored grip* you need for rough runs over splintered rock or shale. Safety-Tensioned *Gum Dipped*® NYLON bodies and cut-resistant treads defy gashes and bruising impacts—make Firestone the top choice of off-the-highway users. Your Firestone Sales Engineer will show you why you'll make them your top choice, too. Contact him today through your local Firestone Dealer or Store.

ROCK GRIP WIDE BASE ROCK GRIP

Enjoy the Voice of Firestone on ABC television every Monday evening.

Firestone

BETTER RUBBER FROM START TO FINISH

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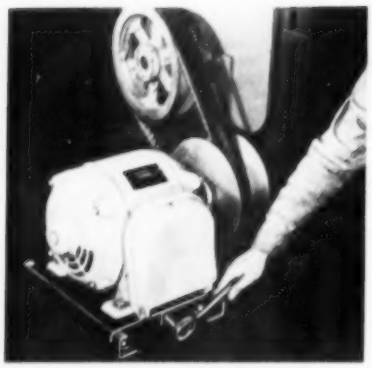
NEW MACHINERY

(Continued from page 160)



Adjustable motor base

THE AMERICAN PULLEY CO., 4200 Wissahickon Ave., Philadelphia 29, Pa., announces the Adjusto-Slide motor base. Belt take-up is said to be accomplished by adjusting one screw.

Replacement of belts requires only that the adjusting screw on most models be loosened and swung aside, freeing the top plate and the motor to move far enough for removing the old and installing the new belt.

Motor base sizes and mounting hole spacing accommodate NEMA frame sizes from 182 through 326V in both old and new designations, from 1 to 30 hp. The base can be mounted vertically, horizontally or in an inclined position.

Enter 113 on Reader Card

Protective spray

A NEW SPRAY HAS BEEN DEVELOPED which blankets and protects outdoor storage piles of bulk materials against all types of weather conditions for periods up to a year or more.

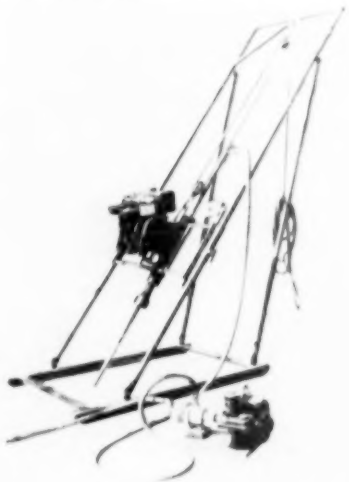
The product, called Permaspray, is a colloidal suspension in water of a chemical which forms a tough, flexible, water-resistant film when exposed to air. It is suitable for coating stockpiles of ores, fly ash, sulfur, sand, waste and all types of materials in dead storage regardless of composition or particle size.

The deposited film is said to resist the action of wind, rain, frost and heat. It also stops dust nuisance and prevents wind loss. By stretching and deforming in heat and cold the film remains unbroken.

After the film is applied, it will set in 24 hours under normal climatic conditions. The solution is supplied ready for spraying in 55-gal. steel drums, and applied at the rate of one gallon of spray to 100 sq. ft. of surface. *The Johnson-March Corp., Philadelphia 3, Pa.*

Enter 114 on Reader Card

Portable drill



A CORE DRILL THAT TILTS to drill at an angle while the motor stays upright has been developed. The "Port-O-Powr" Wonder drill is constructed of 1 and 1¼-in. pipe stock, 10 ft. high. The base supporting the derrick is made of 2¼ x 3-in. I beam and covers an area of 3 x 5 ft.

The pump is powered by a 160-hp. Briggs and Stratton engine. The Robbins & Myers rubber-lined pump is rated at 450 gph. at 50 psi. The power unit, with its automatic clutch, consists of a 3.35 hp. Briggs and Stratton engine. In its cradle the engine can turn about 180 deg.

The drill rig is shipped complete including 50 ft. of drill rod and a choice of 1½-in. OD. carbide bit or a 2-cone rotary type 2⅜-in. bit. Average drilling in hard or semihard rock has been at the rate of from 5 to 10 fph., with about 200 lb. of added weight. *Hitchcock Manufacturing Co., 12015 Wicks St., Sun Valley, Calif.*

Enter 115 on Reader Card

Heavy-duty bulldozer

CATERPILLAR TRACTOR CO., Peoria, Ill., has introduced the No. 9U bulldozer for the Caterpillar D9 tractor.

Suited for jobs such as stripping, the No. 9U bulldozer's design allows it to retain large loads on long-distance moves. It has a straight center section and two side sections angled forward. The side sections cast material inward, and the straight center section pushes the material ahead of the blade, providing for a minimum of end spillage.

Box-type construction of the bulldozer is said to give rugged strength with minimum weight for handling tough materials.

Enter 116 on Reader Card

Spray-on lubricant

DESIGNED TO PROVIDE MINING, construction, and manufacturing with a quick, easy method of lubricating open gears is the new 16-oz. aerosol container of Handi-Lube. A tough protective film of Handi-Lube Liquid gear composition is sprayed on surfaces from a distance of 12 to 18 in. This film of lubricant eliminates metal-to-metal contact and increases gear life by putting the wear on the lubricant instead of the metal. Whitmore's Lubricants are weather-proof and will not break down even after prolonged use under water, the company states.

To provide the correct open gear lubrication under all climatic conditions, Handi-Lube liquid gear composition is available in light, medium and heavy. *The Whitmore Mfg. Co., Cleveland 4, Ohio.*

Enter 117 on Reader Card

(Continued on page 164)

Likes the first YAUN . . . *buys 5 more!*

"Out-wears other buckets we've used 2 to 1," says Edwin Hoffman, Battle Creek, Mich.

"Seven years ago we bought our first Yaun. It handled hundreds of thousands of yards of material ranging from sandy, abrasive soil to stiff clay. Couldn't seem to wear it out, and it is still usable. Since then we've bought 5 more. We find them conservatively rated—they actually hold more than the advertised capacity. The essential wearing parts—chains, shackles, linkage, out-last other buckets we've tried by 2 to 1!" So reports Edwin Hoffman, partner, Hoffman Bros., Battle Creek, Mich., earthmoving contractors.

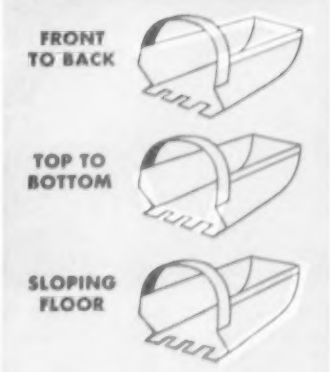
All muscle—no fat—that's the Yaun bucket! Yauns are all-welded for maximum strength, minimum dead weight.

They're built stronger with heavier castings—and wear longer because of manganese steel wearing parts and hard-faced lip surfaces. They dig and dump fast and clean because of their perfect balance.

Sold by leading construction equipment distributors everywhere.

Yaun Manufacturing Co., Baton Rouge, Louisiana

TAPERED 3 WAYS
for faster digging, cleaner dumping



YAUN

DRAGLINE BUCKETS (⅜ to 40 cu. yd.)

CLAMSHELL BUCKETS (¼ to 3 cu. yd.)

CONCRETE BUCKETS (½ to 2 cu. yd.)

THE BUCKET THAT'S BUILT TO LAST!

Enter 1133 on Reader Card

NEW MACHINERY

(Continued from page 162)

Level control device

ENGINEERING CHANGES in the Roto-Bin-Dicator were made to permit the use of this equipment where severe or rugged operating conditions may exist, such as vibration and high stresses on the paddle and shaft assembly.

Available in standard and explosion-proof models, the unit is particularly adaptable to installations in bins under pressure or vacuum; bins, chutes or conveyors handling materials containing large lumps which tend to "bridge" over a diaphragm; and bins handling materials which tend to "rat-hole" and prevent operation of a diaphragm.

To circumvent these problems, the Roto-Bin-Dicator has a slowly rotating paddle, mounted on a flexible shaft. This projects into the bins.

When material in the bin partially or entirely covers the paddle, the rotation of the paddle is stopped and the torque exerted by the motor actuates a micro-switch in the motor housing. When material drops below the paddle, rotation is resumed and the micro-switch returns to normal position. *Bin-Dicator Co., 163-13946 Kercheval Ave., Detroit 15, Mich.*

Enter 118 on Reader Card

Dump truck designed to handle 20-ton payloads

DIAMOND T MOTOR CAR CO., 4401 W. 26th St., Chicago 23, Ill., announces a new dump truck with a combined axle rating of 65,000 lb. The model pictured has a 12½-cu. yd. dump body.

Tandem rear axle of the unit is the Timken SFDD4600, a double reduction type, rated at 50,000 lb. It provides an inter-axle differential with lockout. Front axle is the Shuler FE-15, rated at 15,000 lb.

The Cummins NHB-600 diesel engine is standard in this model. 210 brake horsepower and 575 lb. ft. torque are developed from its 743-cu.-in. piston displacement. Optional Cummins diesels—turbo-supercharged—with hp. up to 262 also are available.

Transmission options include the Spicer 8041 four-speed or the 8250 five-speed, in combination with either a three or four-speed auxiliary of the Spicer 8030 or 8340 series.

Enter 119 on Reader Card

Tramrail carrier

A CAB-CONTROLLED TWIN-HOOK hoist carrier provided with an auxiliary hoist for dumping has been introduced. Of weatherproof construction for outdoor service, the unit will pick up tote boxes of materials, haul them and empty by tipping.

Hoisting and travel motions are controlled by the cab operator. The main hoist alone raises or lowers a tote box in upright position. Hoist speed is 35 fpm. Travel speed is 250 fpm.

Capacity is 12,000 lb., or 6,000 lb. per hook. Other carriers of different capacities can be furnished. *Cleveland Tramrail Division, The Cleveland Crane & Engineering Co., Wickliffe, Ohio.*

Enter 120 on Reader Card

Silent vibrator

A REDESIGN of the Cleveland RC-50 electric vibrator has resulted in a more powerful unit that is easier to handle and install. Used on bins, chutes and hoppers, the new unit develops a maximum vibrating impact of 2,250 lb.

The redesigned RC-50 is 15 lb. lighter, weighing 84 lb. The overall length has been reduced from 14¾ to 13⅜ in. The mounting base is changed for easier installation and to provide a better support for the vibrator. Heavier duty wiring is now used. The RC-50 idles at 200 watts on 220 volts.

The company claims that the rotating design is inherently silent. There are no reciprocating parts, and the only moving part is the rotor. *Cleveland Vibrator Co., 2828 Clinton Ave., Cleveland, Ohio.*

Enter 121 on Reader Card

END

NEW RESULTS OF MONSANTO RESEARCH IN USE OF AMMONIUM NITRATE AS AN EXPLOSIVE

Typical shot with Monsanto's new kind of prilled NH_4NO_3

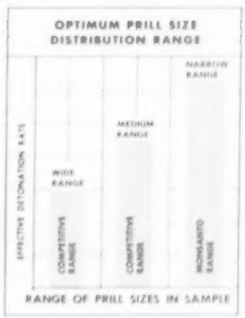
View of area involved in the blast. Shot was made in heavy columnar basalt at dam site. Used as an explosive: a new, top-quality, prilled NH_4NO_3 that Monsanto research developed to give you optimum savings, safety, speed and ease of handling.

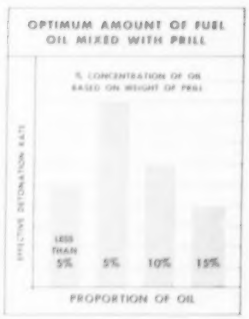
View at time of detonation. The system of detonation recommended by Monsanto, in conjunction with Monsanto Ammonium Nitrate, will yield equivalent pound-for-pound results with 60% gelatin dynamite at one-fourth the cost.

Results of blast. The powder factor in the shot above was 0.4 lbs. per cubic yard. Breakage of rock was considered ideal by contractor. Monsanto's experienced staff can give you complete technical service. Just phone Monsanto.

Photos courtesy of Morrison-Knudsen Company, Inc.

Monsanto Ammonium Nitrate is now produced according to the specifications determined by these findings of Monsanto research. Result: more effective blast at greater savings. Monsanto is the world's largest manufacturer of prilled ammonium nitrate—and leader in developing the use of NH_4NO_3 as an explosive for open work. Request report presenting latest research findings.





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Where Creative Chemistry Works Wonders For You

Enter 1092 on Reader Card

Buyer's guide to top built-in values in rock-rugged pit and quarry power

U-175 CARBURETED POWER UNIT
50 hp @ 2,000 rpm on gasoline. One of 14 International carbureted power units from 16 to 208 net hp.

NEW UDT-1091 TURBOTORQUE DIESEL POWER UNIT
250 net hp @ 1,500 rpm complete with fan and radiator. Power leader of 7 dependable International diesels from 60 hp sized for your prime power needs.

Before you specify power for your new pit and quarry equipment or repower your present machines, it will pay you to find out the top built-in values in rock-rugged International engines—all 21 of them.

You can power your plants with the most economical fuel available—diesel, gasoline, or LPG. The seven models of International diesels from 60 net hp up to the new UDT-1091 Turbotorque* model with 250 net hp at 1,500 rpm (300 max hp) are outstanding for:

1. Full measure of on-the-job power.
2. Protection against life-robbing abrasive dirt and dust.
3. Low consumption of lower cost No. 2 diesel fuel.
4. Easy starting in any weather.
5. Simple, rugged heavy-duty 4-cycle design.

Three new V-8 models extend the power range of 14 International carbureted power units from 16 to 208 net horsepower. You can equip them to burn the fuel of your choice—LPG, gasoline, or natural gas. All models have heavy-duty oil bath air cleaners, large capacity oil filters and in-built protection against dust and dirt.

Equally important to you is the fast, efficient engine parts service support supplied by your nearby International Power Unit Distributor or Dealer. Call him for a brass tack talk about power facts that will show you how much money International can save in your operation.

INTERNATIONAL
International Harvester Company
180 North Michigan Ave., Chicago 1, Ill.

CONSTRUCTION EQUIPMENT
A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors . . . Self-Propelled Scrapers . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

Enter 1119 on Reader Card

MANUFACTURERS NEWS

J. William Robinson heads Canadian subsidiary

Leeds & Northrup Co., Philadelphia, Pa., announces the election of J. William Robinson as president of Leeds & Northrup, Canada, Ltd., a newly organized, wholly owned subsidiary of the company. The firm will manufacture and distribute the electronic controls and measuring instruments formerly supplied from the United States. Other officers are: J. Robert Gowen, production manager; R. C. Park, office manager; D. H. Schultz, vice chairman; S. Loidl Jr., treasurer; and L. A. Blake, secretary.

Also announced, was the retirement of George W. Tall Jr., vice president, secretary and a director of the company, after 42 years of service.

American Brake Shoe Co., New York, N.Y., announces the election of William C. Denison as a vice president of the company and his appointment to the operations policy committee. Mr. Denison is also president of Brake Shoe's Denision Engineering Division, which he organized as a company in 1931. Denison Engineering was acquired by Brake Shoe in 1955 and Mr. Denison became a member of the board of directors of the parent company at that time.

Several appointments in the American Manganese Steel Division were also announced: Joseph L. Mullin, former vice president of the division, was named executive vice president. W. Frank Kelly was appointed vice president of operations; John F. Holtman, assistant vice president of operations, and William E. Crocombe, Jr., assistant vice president of sales.

The Sharples Corp., Philadelphia, Pa., announces the formal opening of the new modern factory and offices of its wholly owned English subsidiary, Sharples Centrifuges, Ltd., at Camberley, Surrey, England.

The Maxi Corp., Los Angeles, Calif., announces the appointment of Howard D. Griffin to the position of sales manager for the company's complete line of products.

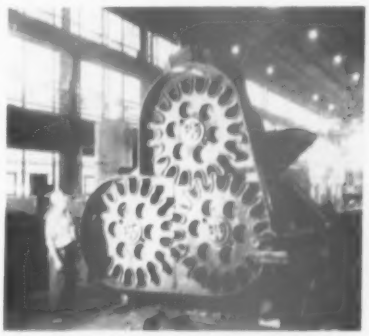
Coles Cranes Inc., Joliet, Ill., announces that Art Shelton was recently appointed regional manager for the Chicago area.

LeTourneau-Westinghouse Co., Peoria, Ill., announces that N. J. Richart, formerly sales representative in the southeastern states, has been transferred to the equipment sales department as an assistant district representative, with headquarters in Atlanta, Ga. Also announced were the appointments of R. D. Paustian and E. H. Russ to sales posts in the wire rope division.

Harbison-Walker Refractories Co., Pittsburgh, Pa., has announced the appointment of Harry S. Schweinsberg as assistant general sales manager. Mr. Schweinsberg, who has been with the company since 1924, was formerly sales manager of the company's Philadelphia district.

Thor Power Tool Co., Chicago, Ill., announces that Irving M. Converse has been named comptroller of the company to fill the post of the late Frank J. Weitekamp. Also announced, was the appointment of A. V. Moroz as electric tool sales manager at the company's Chicago branch, succeeding Arthur H. Nelson, who has retired after 23 years with the firm.

Pioneer ships 2,000th unit



Pioneer Engineering Works, Inc., Minneapolis, Minn., passed a milestone in the history of the company when a 54 x 24 triple roll crusher was shipped recently. It was the 2,000th roll crusher built and placed in service by Pioneer since the company was founded in 1929.

Link-Belt to construct new bearing plant

Link-Belt Co., Chicago, Ill., has announced the construction of a $5 million bearing plant west of Indianapolis. The plant, to be completed in 1958, will be about 850 ft. long, 400 ft. in depth, with a two-story office building. All manufacturing operations will be on one floor. The plant will be in full production in 1959.

(Continued on following page)

MANUFACTURERS NEWS

(Continued from preceding page)

The Yale & Towne Mfg. Co., New York, N.Y., announces that James Rainey has been appointed district sales manager for south central United States. Mr. Rainey will supervise the sale of Yale industrial lift trucks and hoists in Missouri, Kentucky, Kansas, Oklahoma, Indiana, southern Illinois, Nebraska and Iowa.

The company also announces that a sales and service sub-branch of the materials handling division in Grand Rapids, Mich., has been established to serve the western part of the state. The new sub-branch will maintain a complete service shop and parts stock facilities.

Neptune Meter Co., New York, N. Y., announces that its Canadian subsidiary, Neptune Meters Limited of Toronto, has purchased all outstanding stock of Cleveland Meters Ltd., England. Arthur Hargreaves, formerly technical director of Cleveland Meters, will supervise the firm's operations in Great Britain as managing director. The company will continue to operate from its present location in Redcar, Yorkshire, England.

American Air Filter Co., Louisville, Ky., announces the consolidation of Marshall & Wells Co., and Air Engineering Co., with Air Engineering Co. emerging as the principal firm. The main office for the new organization will be in Kalamazoo, Mich., with branches in Grand Rapids, Mich., and South Bend, Ind. Personnel of both firms will remain intact. Also announced, was the appointment of W. N. Murray as branch manager of the Boston branch office. Mr. Murray succeeds Robert E. Reid, who has been appointed a special sales engineer for the firm.

General Electric Co., Schenectady, N.Y., announces that Dr. Irving Langmuir died August 16, at the age of 76. Dr. Langmuir, a Nobel prize winner, was on the staff of the General Electric Research Laboratory from 1909 until his retirement in 1950. Dr. Langmuir, who was born in Brooklyn, studied for three years in Paris, then returned to the United States, where he studied at Chestnut Hills Academy, Philadelphia, Pratt Institute, Brooklyn, and at the School of Mines, Columbia University, where he graduated with a degree in metallurgical engineering. Later he studied at the University of Gottingen in Germany, where he was awarded M.A. and Ph.D. degrees. He taught chemistry at Stevens Institute of Technology until 1909, when he joined the staff of the Research Laboratory at General Electric.

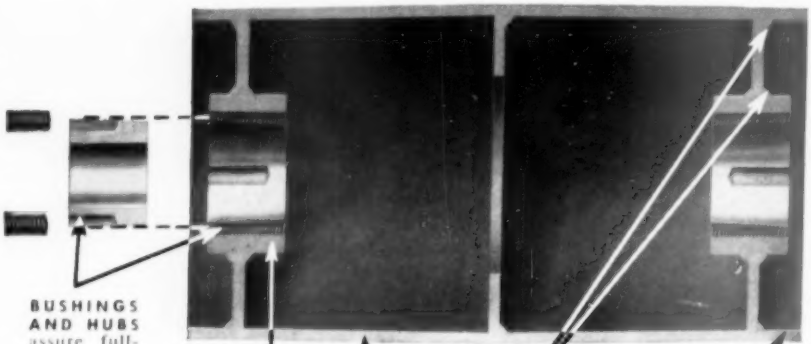
Clarence Seybold appointed personnel director

Smith Engineering Works, Milwaukee, Wis., has announced the appointment of Clarence R. Seybold as personnel director. Mr. Seybold, a graduate of the University of Wisconsin, was formerly personnel director for the Motor Casting Co. In his new position, Mr. Seybold will be in charge of employment and safety.

(Continued on page 170)

These features make LINK-BELT welded steel pulleys . . .

BEST FOR YOUR BELT CONVEYORS


BUSHINGS AND HUBS assure full-compression grip.
MINIMUM OVER-HUNG LOAD. Bearings can be mounted close to hubs.
PURE RUBBER LAGGING is vulcanized to pulley for life.
SUBMERGED ARC WELDS have strength equal to joined members.
MINIMUM RIM OVERHANG prevents collection of dirt.

Taper lock bushings . . . all-steel construction . . . exact alignment — features like these make easy-mounting Link-Belt welded steel pulleys best for your belt conveyors. They're available from 6- to 60-in. diameters, 12- to 66-in. faces with bushings for $1\frac{15}{16}$- to 10-in. shafts. Immediate delivery in every industrial area from your Link-Belt factory branch store or authorized stock-carrying distributor.

EASY ON . . . Insert bushing in hub, align holes and keyseat, slide shaft in place. Insert and tighten screws in holes threaded in hub.

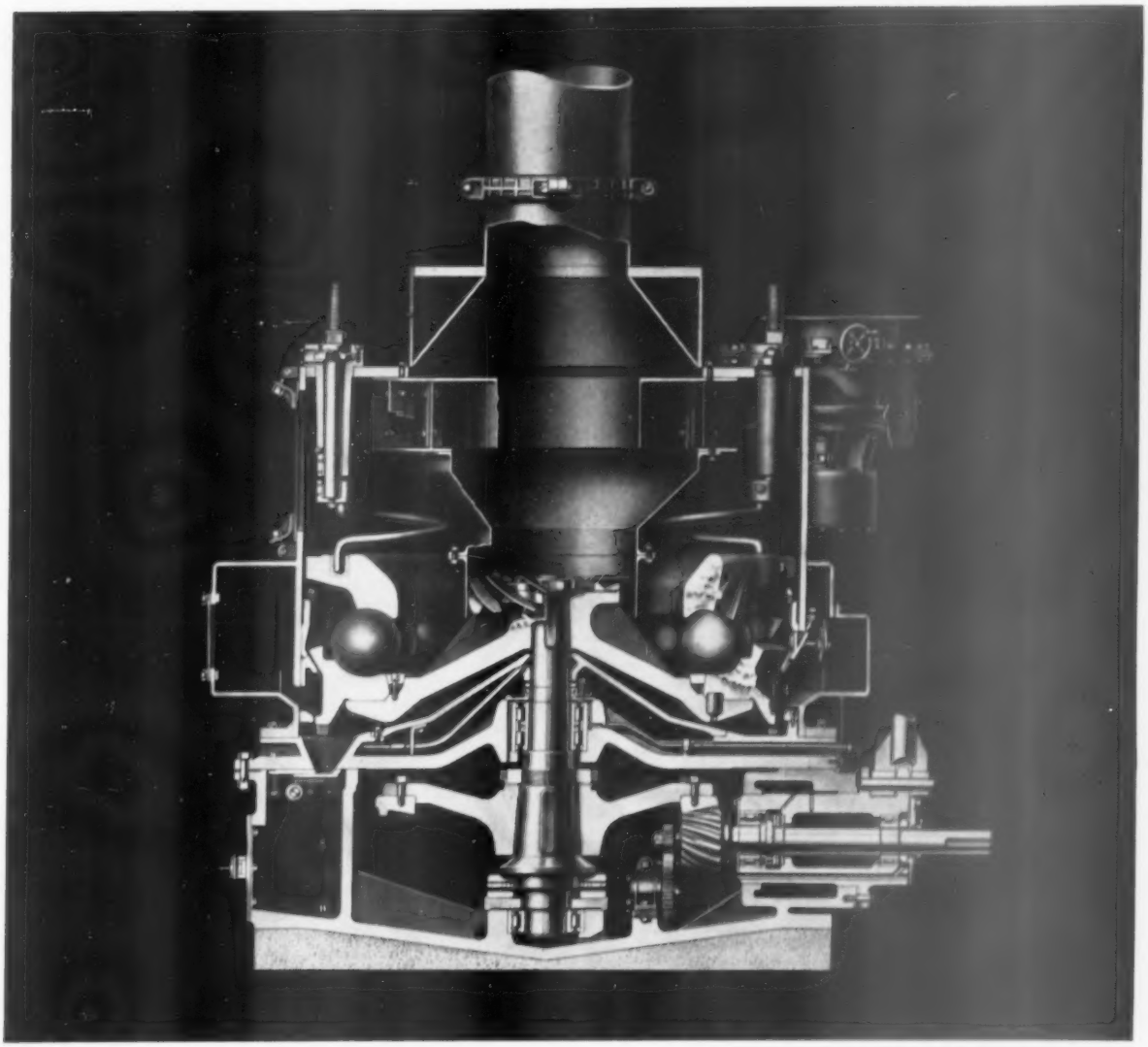
EASY OFF . . . Remove screws, screw one into hole with half-threads in bushing. With bushing released, shaft can easily be slipped off pulley.

LINK-BELT

WELDED STEEL CONVEYOR PULLEYS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. 14,286

Enter 1052 on Reader Card



This B&W Type EL Pulverizer has a rated capacity of 18,000 lb of coal per hr.

16 B&W Pulverizers Save Fuel For Marquette

Over a period of years Marquette Cement Mfg. Co. has had successful experience with B&W Pulverizers in direct-firing service. Recently, a Type EL was installed at the Des Moines plant, and a Type EL has been ordered for the Cape Girardeau plant. After the latter is placed in service, Marquette will have 16 B&W Pulverizers.

Type EL Pulverizers have made impressive performance records for direct-firing of rotary kilns. They maintain high fuel economy, even when firing low grade coals. They can be operated continuously for long periods, shutting down only for infrequent inspection. Tough, wear-resistant grinding elements are externally adjusted.

Many Cement Manufacturers are gaining marked operating and maintenance savings—in addition to safety, reliability, and low first cost—with B&W Pulverizers. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.

C-215

BABCOCK & WILCOX

BOILER DIVISION

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You're Sure with Merrick

For Positive Controlled Feed by Weight of Sand Gravel, Lime Clinker, Gypsum or other materials to Process—

Use the Feedoweight

MERRICK SCALE MFG. CO.
180 AUTUMN STREET · PASSAIC, NEW JERSEY

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MANUFACTURERS NEWS

(Continued from page 168)

Bendix Radio Div., Bendix Aviation Corp., Baltimore, Md., announces the appointment of Gilbert D. Doroff as national sales manager, mobile products. Mr. Doroff will direct national sales of two-way mobile radio communication systems. Frank R. Viafora will replace Mr. Doroff as midwest regional manager for Bendix two-way mobile products.

Hewitt-Robins Inc., Stamford, Conn., has received an order for approximately $1 million for the design and manufacture of a conveyor system to handle sand, clay and peat overburden under which is buried a rich deposit of bauxite ore in Surinam, northeastern South America. The conveyor system will receive the overburden material from a bucket wheel excavator and deliver it to a dump about two miles from the excavation site. The ore will be shipped by rail to the banks of the Surinam River where it will be dried and put aboard ships for transportation to alumina and aluminum plants along the Gulf Coast of the U.S. and to Canada.

Increase Service Life of Tractors!

Reclaim WORN TRACTOR PARTS *with* MANGANAL

11 ¾-13½% MANGANESE-NICKEL STEEL

APPLICATOR BARS & WELDING ELECTRODES

- Work harden to 550 Brinell
- Tensile strength up to 150,000 psi
- Outlast new parts

STULZ-SICKLES CO.
PORT AVENUE at JULIA ST. ELIZABETH, NEW JERSEY

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William E. Grace elected executive vice president

The Fruehauf Trailer Co., Detroit, Mich., announces the election of William D. Grace as executive vice president. A veteran in the truck-trailer field, he has served as general manager of Hobbs Trailers in Fort Worth, Texas, and as vice president of Fruehauf since Fruehauf acquired Hobbs in November 1955. Mr. Grace was a director of the Truck-Trailer Manufacturers Association for 10 years, and served as its vice president from 1948 to 1951 and as president in 1952 and 1953.

The appointment of S. T. Priceman as general manager of both the used trailer and leasing divisions of Fruehauf was also announced. Mr. Priceman, who joined Fruehauf in 1948, has been serving as general sales manager for the last two years.

Marion Power Shovel Co., Marion, Ohio, has announced several new appointments on its engineering staff. Merle V. Lashey is now manager of engineering; Jack F. Weis is assistant chief engineer for large and intermediate size machines; and Robert W. Bergmann has been named electrical engineer.

McDowell Co., Inc., Cleveland, Ohio, announces that Edgar W. Percy has been made assistant sales manager of the Williams bucket division. Mr. Percy, a graduate of Fenn College, Cleveland, Ohio, has been with Williams since 1955.

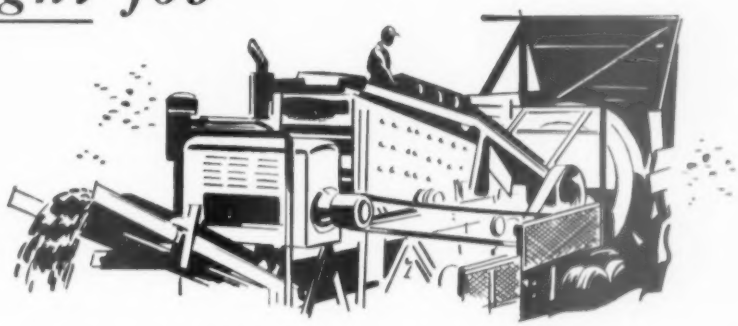
Gar Wood Industries, Inc., Wayne, Mich., has announced plans for the operation of a new plant for the production of Gar Wood—St. Paul dump truck bodies. The new plant will be located in Exeter, Pa.

(Continued on page 172)

choose the right screen for the right job

Need a screen with low initial cost?

Need a screen that gives long service on average jobs?

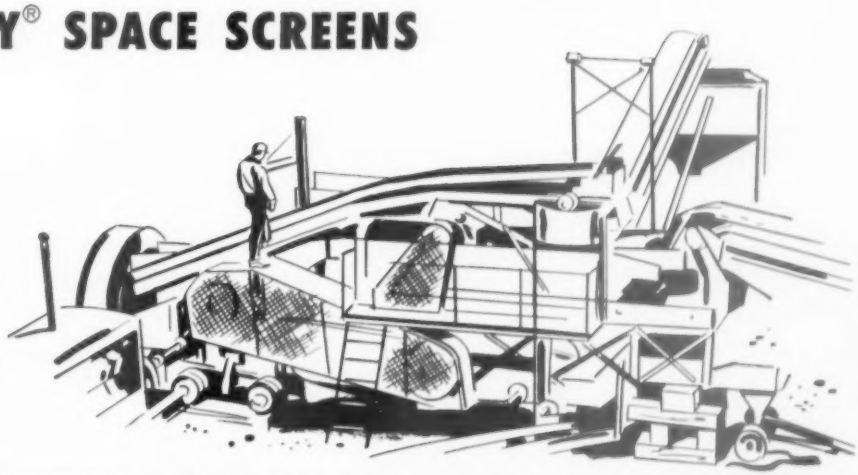


. . . choose

WISSCO-LOY® SPACE SCREENS

Need a screen with high abrasion resistance?

Need lowest cost-per-ton screening?



. . . choose

SUPER-TEMPERED PRECISION SPACE SCREENS

Do you try to match your screening requirements with exactly the right screen—the screen that gives you most for your dollar? Then we suggest that your CF&I representative can help you make that choice. He can offer you *two* top quality space screens—each possessing special advantages, depending upon the type of screening job.

Economically-priced Wissco-Loy Screens, made from alloy steel wire, are designed for jobs where toughness is required, but where abrasive conditions are moderate.

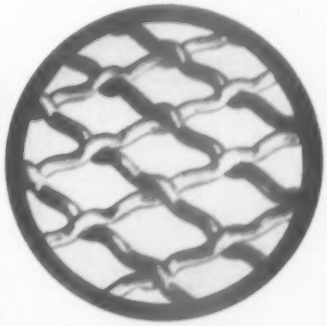
Super-Tempered Screens, made from oil-tempered wire, give long service on jobs where abrasion is expecially severe.

Both these CF&I Space Screens are available in a wide range of standard dimensions, wire sizes, openings and edge preparations—or you can specify any type to meet your own job requirements. For the complete story on Wissco-Loy and Super-Tempered Space Screens, contact your CF&I representative or write direct to Sales and Engineering, 56 Sterling Street, Clinton, Mass.

4460

CF&I **SPACE SCREENS**

THE COLORADO FUEL AND IRON CORPORATION



THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso • Ft. Worth Houston • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Antonio San Francisco • Seattle • Spokane • Wichita

WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia

CF&I OFFICES IN CANADA: Montreal • Toronto • CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg

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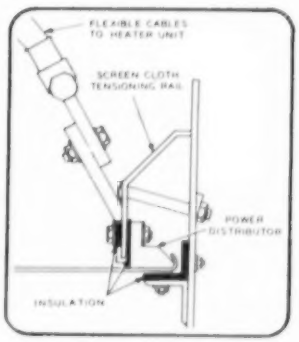
ARE YOUR SCREENING METHODS OBSOLETE?

FOR FASTER, MORE ACCURATE SIZING USE *Hanco* ELECTRIC SCREEN HEATERS

Today when full speed production is more important than ever before, you cannot afford obsolete methods of screen processing. HANCO electric screen heaters save valuable time, preserve equipment and guarantee good separation of materials at all times. You can eliminate clogging and binding with a HANCO engineered electric screen heater.

HANCO offers engineered heating attachments for *all* makes and types of screening units. For complete information ask for HANCO Bulletin No. 756.



Here is part of the secret to successful screen heating — the rest is HANCO experience and enterprise.

Hanco **F. R. HANNON & SONS**

1605 Waynesburg Rd. S.E., Canton 7, Ohio

PIONEERS IN ELECTRIC SCREEN HEATING — FIRST IN THE FIELD OF LOW VOLTAGE AND HIGH AMPERAGE SCREEN HEATING

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Auto - Vortex Classifiers are delivering sharp gradations and recovering fines . . . . at lower operating costs . . . in hundreds of installations all over the country.

CHARLES E. WOOD CO.

AUTO VORTEX CLASSIFIERS

906 N. WATER ST. • MILWAUKEE 2, WIS.

We'd like to solve your classification problem. Write today!

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KEEP ABREAST WITH INDUSTRY TRENDS THROUGH ROCK PRODUCTS

MANUFACTURERS NEWS

(Continued from page 170)

American Smelting and Refining Co., New York, N.Y., announces that F. V. Richard, manager of the western mining department, passed away on September 5, in Salt Lake City, Utah. Mr. Richard, a graduate of the University of California, had been with the company for 24 years.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., recently shipped three crushers to Bilbao, Spain, for use in preparing aggregate in connection with the construction of a new dam. The dam, known as Salto de Aldeadavilla, is being built in the international zone on the Duero River. In addition, Allis-Chalmers Great Britain, Ltd., is furnishing nine "Ripl-Flo" screens for the project.

(Continued on page 174)

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946. (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF

ROCK PRODUCTS, published monthly at Chicago, Ill., for October 1, 1957.

1. The names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—Maclean-Hunter Publishing Corp., 79 W. Monroe St., Chicago 3, Ill.

Editor—George C. Lindsay, 79 W. Monroe St., Chicago 3, Ill.

Managing Editor—Richard S. Huhta, 79 W. Monroe St., Chicago 3, Ill.

Business Manager—P. D. Allen, 79 W. Monroe St., Chicago 3, Ill.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

Maclean-Hunter Publishing Corp., 79 W. Monroe St., Chicago 3, Ill. The stockholders of the Maclean-Hunter Publishing Corp. are P. D. Allen, 255 Locust Rd., Winnetka, Ill.; Joseph J. O'Neill, 14 Lincoln Court, Lombard, Ill.; F. S. Chalmers, 86 Chestnut Park, Toronto, Ont., Canada; Horace T. Hunter, 120 Inglewood Drive, Toronto, Ont., Canada; Maclean-Hunter Publishing Co., Ltd., 481 University Ave., Toronto, Ont., Canada.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which the stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.) . . .

P. D. Allen
Publisher

Sworn to and subscribed before me this 27th day of September, 1957

[SEAL]

June G. Martin

(My commission expires January 31, 1959.)

How a sand and gravel plant
SAVES UP TO $162 PER WEEK

Amsco® Semi-automatic S/A-53 Tube Rod... used in place of a competitive semi-automatic rod, is saving a large sand and gravel operator up to $162 per week on roll crusher hardfacing. And this is done with no loss of service life . . . no increase in welding time or rod consumption.

These roll crushers handle 3000 tons of gravel per week, work 10 days between hardfacings. Replacement rolls are hardfaced daily, using about 50 lbs. of rod.

You can make comparable savings by using Amsco S/A-53 Tube Rod in severe impact-abrasion service. S/A-53 is designed especially for use with Amsco MF Semi-automatic Welders, but other machines may be easily adapted to accommodate its $^{3}/_{32}$" diameter.

S/A-53 is a prehardened, pre-lubricated, high-chromium alloy rod . . . easy to weld on carbon or manganese steel. Deposits from 5 to 15 lbs./hr. according to current settings. Deposit hardness averages 425 to 475 Brinell.

Any Amsco Distributor will give you a chance to try S/A-53 in an Amsco MF Semi-automatic Welder. Why not take him up on it and test the savings yourself?

Write for Bulletin 656, describing S/A-53 and the complete Amsco "wear-fighter" welding line in detail. Address: Amsco Welding Products Department, Chicago Heights, Ill.

Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC

Enter 1032 on Reader Card

MANUFACTURERS NEWS

(Continued from page 172)

Newton H. Willis named vice president—engineering

Waukesha Motor Co., Waukesha, Wis., announces that Newton H. Willis, recently named a vice president, has been placed in charge of all engineering activities. Mr. Willis will continue to direct the railway division of the organization.

Minnesota Mining & Mfg. Co., St. Paul, Minn., announces that Joseph C. Duke and Bert S. Cross, vice-presidents, have been elected to the board of directors. Robert H. Tucker has been appointed secretary, succeeding John L. Connolly, who has retired but will continue as general counsel and director. Irwin R. Hansen, who has been assistant treasurer since 1954, succeeds Clarence M. King as treasurer. Mr. King has also reached retirement age but will continue to serve in an advisory capacity.

Union Bag-Camp Paper Corp., New York, N.Y., announces that Walter Shorter, vice president in charge of paper and bleached board sales, was named vice president and general sales manager for the company. In his new position he will be responsible for the direction and coordination of all major line sales activities.

United States Steel Corp., Pittsburgh, Pa., announces the appointment of Arthur F. Berliner as media supervisor in the advertising division of the company. Mr. Berliner's responsibilities will encompass all media recommendations in the industrial advertising field as well as serving as a coordinator for media in the product advertising group. Mr. Berliner was formerly advertising manager of the Arco Company in Cleveland, Ohio.

Koehring Co., Milwaukee, Wis., has announced the promotion of A. L. Dassler from assistant chief engineer to chief engineer of the Koehring division. Mr. Dassler, who has been with the company since 1935, will supervise design of Koehring's complete line of shovels, hoes, draglines and cranes. He will also be responsible for engineering developments on the Dumptor, the "Mud-Jack" slurry pump, concrete mixers and "Twinbatch" pavers. Kenneth Johnson, senior designer, succeeds Mr. Dassler as assistant chief engineer.

Fuller Co., Catasauqua, Pa., has entered the field of dust collection and recovery by the purchase of Dracco Corp. of Cleveland, Ohio. Dracco Corp. will operate as an independent subsidiary of Fuller, under the same management. It will continue to produce and market the same equipment.

The Cleveland Crane & Engineering Co., Wickliffe, Ohio, announces the appointment of James F. Wible as personnel director. Mr. Wible, a graduate of Dennison College, Granville, Ohio, formerly held the same position at The Weatherhead Co., where he served for 15 years.

(Continued on page 176)

STURDY • PRACTICAL • DEPENDABLE • ECONOMICAL

Furnishes a positive seal for round flexible joints. Used by leading dredging and hydraulic sand-and-gravel operators, and the U. S. Engineering Corps. This Multi-use chain sleeve clamp is easy to apply . . . positive in action. Write for illustrated folder, today.

THE BLACK BROTHERS CO., INC., 505 9th Ave., Mendota, Illinois

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PLATEGRIP
PLATE FASTENERS FOR CONVEYOR BELTS

Make strong dust-tight, water-tight joints in belts of any width. Special design spreads tension uniformly across belt, allow natural troughing of belt and assures smooth operation over flat, crowned or take-up pulleys. Sizes for belts of from 1/4" to 1 1/2" thickness. *Write for Catalog Sheet.*

ARMSTRONG BRAY & CO.
5306 Northwest Highway, CHICAGO 30, U. S. A.

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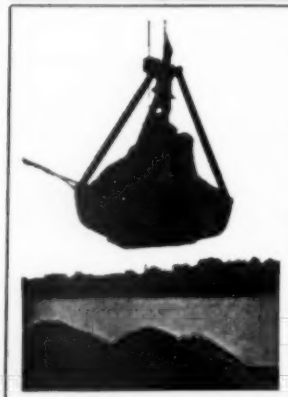

STANDS UP TO SEVERE USE
and even abuse

One word describes a Hayward —*ruggedness*. Yes, it's as tough, strong, sturdy as a bucket can be — and even more so. Extreme simplicity, little if any upkeep, high operating efficiency! Details on request. Write! THE HAYWARD COMPANY, 50 Church St., New York 7, N. Y.

HAYWARD BUCKETS

CLAM SHELL · ELECTRIC · ORANGE PEEL · GRAPPLES

famous for performance since 1888

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How Allis-Chalmers engines bring out the best in any equipment

YOUR EQUIPMENT DOES MORE when powered by Allis-Chalmers high-torque, high-usable-horsepower engines. There is a minimum of pull down due to sudden loads, with quick recovery of engine speed — and real lugging power at slow speeds.

KEEPS WORKING DAY AFTER DAY. There is unusual simplicity in rugged Allis-Chalmers engines. Diesel models, for instance, have 30 to 50 percent fewer wearing parts than competitive engines. Less can go wrong when parts are fewer and stronger.

GETS BACK TO WORK FASTER. Simplicity means easier servicing, too, for Allis-Chalmers engines. They are back to work quickly because you are close to fast parts and service, wherever you are.

See your Allis-Chalmers dealer for full information on engines that will get the most out of *your* equipment — *any* type or size, 9 to 516 hp; *any* fuel, LP or natural gas, gasoline or diesel; for *any* application. Allis-Chalmers, Buda Division, Milwaukee 1, Wisconsin.

BC-10

ALLIS-CHALMERS *Engineering in Action*

MANUFACTURERS NEWS

(Continued from page 174)

Alan Smythe named president

The Thew Shovel Co., Lorain, Ohio, announces that Alan W. Smythe, vice president and general manager of the company, has been elected president of Byers Machine, Inc. Mr. Smythe replaces A. C. Lundgren who has retired. Mr. Smythe will continue to serve as a director of Byers and in his present capacities at Thew. Also announced, was the election of W. J. Allaback as vice president and a director of Byers and of the appointment of H. G. Dehnel as manager of Byers. D. L. Douglass has been advanced to director of parts and service, and Carrol G. Turk has assumed the position of assistant to director of parts and service.

Mall Tool Co., Bridgeport, Conn., a division Remington Arms Co., Inc., has announced a series of organization changes. New appointments are: C. C. Clair, manager of chain saw sales; E. S. McCawley, Jr., manager of electric tool sales; H. M. Trowern, Jr., advertising and sales promotion manager; G. G. D. Rockwell, manager of contractor and industrial tools sales. Assisting Mr. Rockwell as special representatives will be E. L. Holland and W. D. Mishler. Ralph J. Schwass has been appointed supervisor of product service, and G. M. Hans has been named a special representative assigned to product development.

The Colorado Fuel & Iron Corp., New York, N.Y., has announced the election of Robert T. Dunlap as vice-president of the American Wire Fabrics Corp., Mount Wolf, Penn., a subsidiary. He was associated with Wickwire Spencer Steel Co. and later with C.F.&I. after the two companies merged in 1945. In 1947 he joined the Great American Industries, Inc., and served as president and chairman of the board until 1956.

Eimco Corp., Salt Lake City, Utah, announces the appointment of J. Lyle Prickett as tractor sales and service specialist in the Pittsburgh office.

Quick-Way Truck Shovel Co., Denver, Colo., has announced the appointment of Theodore S. Petersen as sales manager. Mr. Petersen succeeds Daniel S. Heffron who resigned.

Jeffrey Manufacturing Co., Columbus, Ohio, has announced the appointment of George Kepley as district manager, industrial division of the Beckley, W. Va., office. Mr. Kepley replaces James Burke who resigned.

END

Plant uses KVS equipment

In the September issue of ROCK PRODUCTS, the story on Texas Portland Cement Co. did not make it clear that the kilns, mills, clinker cooler, crushers, screens, conveyors and most of the miscellaneous equipment were not only specified by Kennedy-Van Saun Mfg. & Eng. Corp., but also manufactured by them.

RP BUYER RESEARCH SERVICE

PRODUCER PURCHASING SERVICE *FREE*

QUICK—COMPLETE SOURCE CONTACTS FOR ROCK PRODUCTS PRODUCERS on Machinery—Equipment—Supplies—Service

___Aftercoolers, Air
___Agitators
___Aggregates (special)
___Air Compressors
___Asphalt Mixing Plants
___Bagging Machines
___Bags
___Barges
___Belting, Conveyor
___Elevator, Power Transmission
___Belting, V-type
___Belt Repair Equipment
___Bin Level Indicators
___Bins and Batching Equipment
___Bits
___Blasting Supplies
___Bodies, Trailer
___Buckets
___Bulldozers
___Cars, Industrial
___Classifiers
___Clutches
___Coal Pulverizing Equipment
___Concentrating Tables
___Conveyors
___Crushers
___Coolers
___Cranes
___Derricks
___Dewatering Equipment, Sand
___Diesel Engines
___Dragline Cableway Excavators
___Draglines
___Dredge Pumps
___Drilling Accessories
___Drills
___Dryers
___Dump Bodies
___Dust Collecting Equipment & Supplies
___Electric Motors
___Engineering Service Consulting and Designing
___Explosives & Dynamite
___Fans and Blowers
___Feeders
___Fifth Wheel Heavy Duty Special
___Flotation Equipment
___Front End Loaders
___Gasoline Engines
___Gear Reducers
___Generator Sets
___Grinding Media
___Gypsum Plant Machinery
___Hard Surfacing Materials
___Hoists
___Hoppers
___Kilns: Rotary, Shaft, Vertical
___Locomotives
___Lubricants
___Magnetic Separators
___Mills
___Pipe
___Pumps
___Scales
___Screen Cloth
___Screens
___Scrubbers: Crushed Stone, Gravel
___Shovels, Power
___Speed Reducers
___Tanks, Storage
___Tires and Tubes
___Torque Convertors
___Tractor Shovels
___Tractors
___Trailer Dump Bodies
___Trucks, Bulk Cement
___Trucks, Industrial
___Trucks, Mixer Body
___Trucks, Motor
___Valves
___Vibrators
___Welding and Cutting Equipment
___Winches
___Wire Cloth
___Wire Rope

If equipment you are in market for is not listed above, write it in space below.

The principal rock product(s) manufactured by my company is/are indicated "1", "2", "3", in order of importance below.

___Crushed Stone
___Sand & Gravel
___Slag
___Cement
___Lime
___Gypsum
___Ready Mix Concrete
___Concrete Products Type
Other nonmetallic mineral (What?)

All above information is strictly confidential to be used to guide the manufacturers in supplying proper information.

Please Check Service Desired

☐ Have Salesman Call ☐ Literature only
☐ Prices ☐ By mail ☐ Urgent

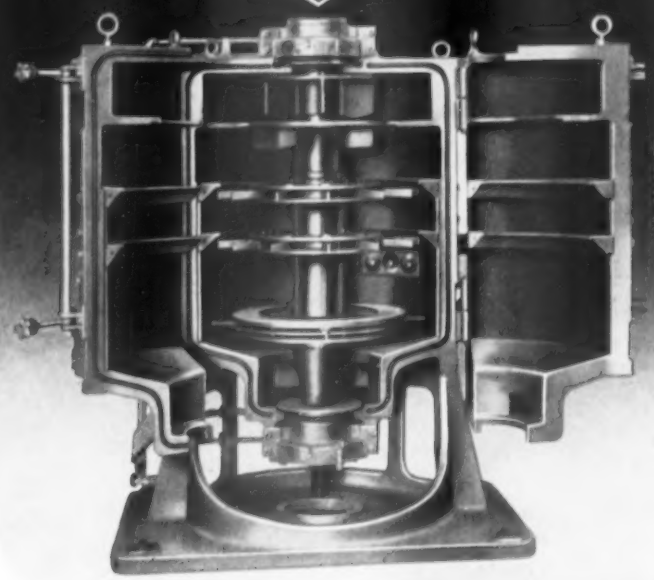
NOTE: See—Where to Buy-Classified Advertising Section for used equipment and complete plant information

Name
Title
Firm
Street & No.
City and State
Your Signature Title

FILL IN—TEAR OUT—MAIL NOW! *BUYER RESEARCH SERVICE DEPARTMENT:* ROCK PRODUCTS 79 W. Monroe St. Chicago 3, Illinois

RAYMOND VERTICAL MILL

SINGLE VERTICAL ROTOR SHAFT CARRIES FAN BLADES, SWING HAMMERS AND REVOLVING WHIZZERS



SIMPLE DESIGN: NO GIMMICKS, NO COMPLICATED ADJUSTMENTS, AND NO CLOSE CLEARANCES.

HINGED DOORS OPEN FULL WIDTH FOR COMPLETE ACCESS TO THE GRINDING CHAMBER

PRECISION CONSTRUCTION

WHIZZER SEPARATION

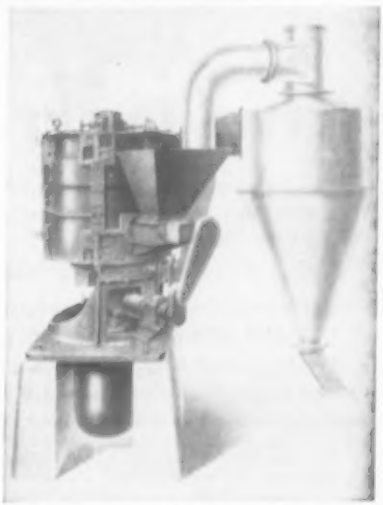
Wide Open Accessibility for Every Inspection and Cleaning

Superfine Pulverizing with a Simplified Grinding Unit

This modern Raymond Vertical Mill is a straightforward commonsense design that combines top performance with easy control, and provides quick accessibility that reduces downtime to a minimum in making new set-ups or adjustments. By loosening a couple of star nuts, the doors can be swung open to expose the complete interior with all the working parts in a matter of seconds.

This specialized unit excels in the grinding of non-abrasive materials to extremely high fineness ranging from minus 325 mesh into the sub-sieve sizes. On some of these softer materials, finished products in the range of 95% to 98% finer than 5 to 10 microns are commonly produced on this mill. It is likewise very effective in pulverizing tough, hard-to-reduce and fibrous products where close fineness control is required.

Write for Bulletin No. 78, which describes two sizes: the 18" and 35" Vertical Mills.



Exterior View of the 35" Raymond Vertical Mill. Interior shown at top.

COMBUSTION ENGINEERING, INC.

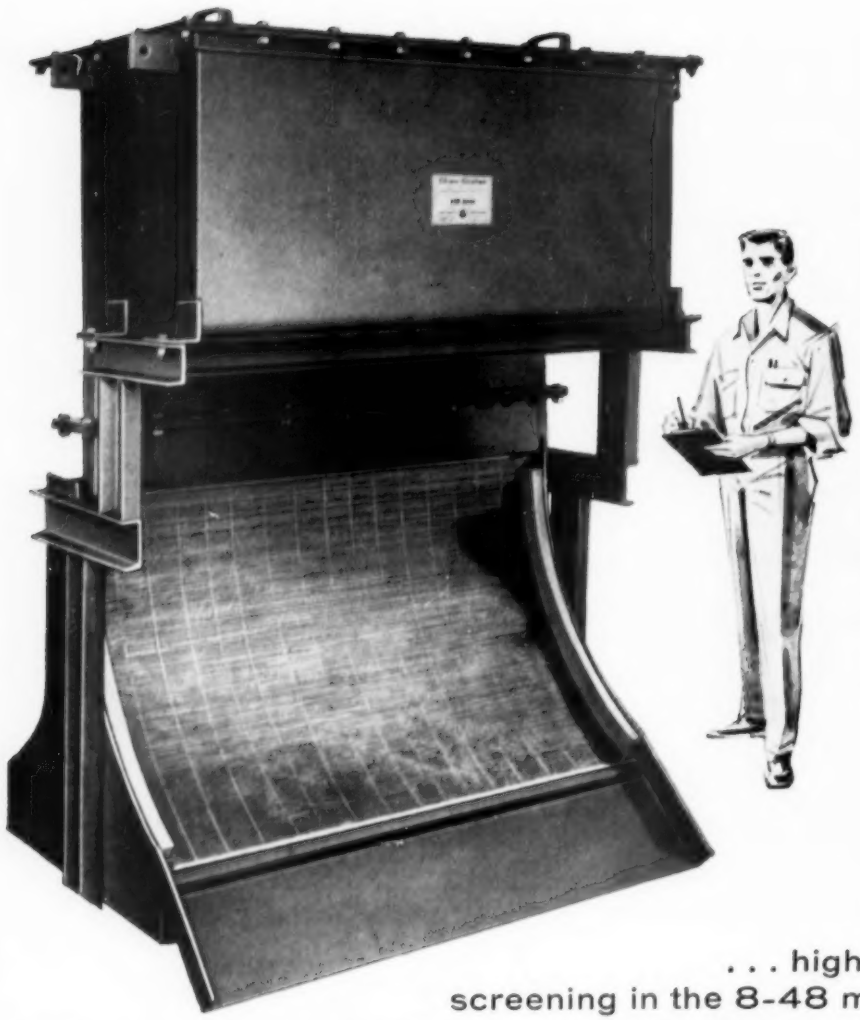
Raymond Division

1307 NORTH BRANCH ST.
CHICAGO 22, ILLINOIS

SALES OFFICES IN PRINCIPAL CITIES

COMBUSTION ENGINEERING-SUPERHEATER LTD., Montreal, Canada

Enter 1120 on Reader Card



NOW...

. . . higher capacity wet
screening in the 8-48 mesh range with

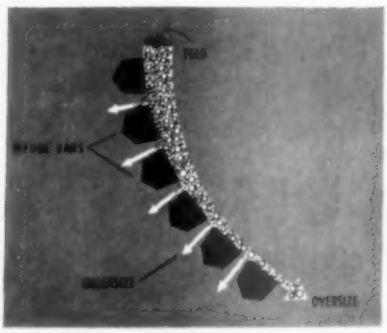
The Dorr-Oliver DSM Screen

The latest and one of the most significant advances in the Dorr-Oliver line of classification equipment is the Dorr-Oliver DSM Screen . . . developed for the high capacity wet screening in the 8-48 mesh range.

Capable of handling exceptionally large flow volumes, the DSM Screen will effect separations at capacities greatly in excess of other units now operating in this size range. The compact and economical stationary design requires very little floor space . . . no special support required other than that for piping. Installation and operating costs are low . . . no moving parts result in minimum maintenance.

Available in four standard sizes from 1 to 4 ft. in width the DSM Screen can provide from 200 gpm of 48 mesh undersize per ft. width to 500 gpm of 8 mesh undersize per ft. width.

For more information on this newest tool for the mining industries, write for a copy of Bulletin No. 2300. Dorr-Oliver Incorporated, Stamford, Connecticut.



Illustrative drawing showing principle of separation

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

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New Ringblaster "Muffler" swallows blast noise!

Now . . . firing noise is cut by 60% with this exclusive Winchester-Western kiln gun extra!

This Ringblaster muffler was designed by experts, tested by acoustical engineers and found to reduce kiln gun blasts to a low, safe sound level with normal ear protection. The three-stage baffle built into this muffler reduces loudness by 60% and sound intensity by 75%*. It gives kiln gun operators a measure of sound-safety never before possible.

"A terrific improvement!" . . . "Why wasn't it done before!" . . . these are typical of the many favorable comments made by new users of the quieter, more efficient Ringblaster with its muffler.

And this safety-extra is so compact, it doesn't impair aiming or firing accuracy . . . doesn't block kiln doors—it fits around the heavy-duty Ringblaster barrel, sealing in the sound.

Ringblaster is the *only* kiln gun that comes factory-equipped with a muffler. It also features a short stroke lever for faster firing action. Write for new catalog.

*As tested by an independent laboratory.

TRADEMARK
RINGBLASTER Kiln Gun

FOR SHELLS, SERVICE OR EQUIPMENT CONTACT:
Ramset Fastening System
CLEVELAND 11, OHIO

Made by WINCHESTER-WESTERN DIVISION
OLIN MATHIESON CHEMICAL CORPORATION
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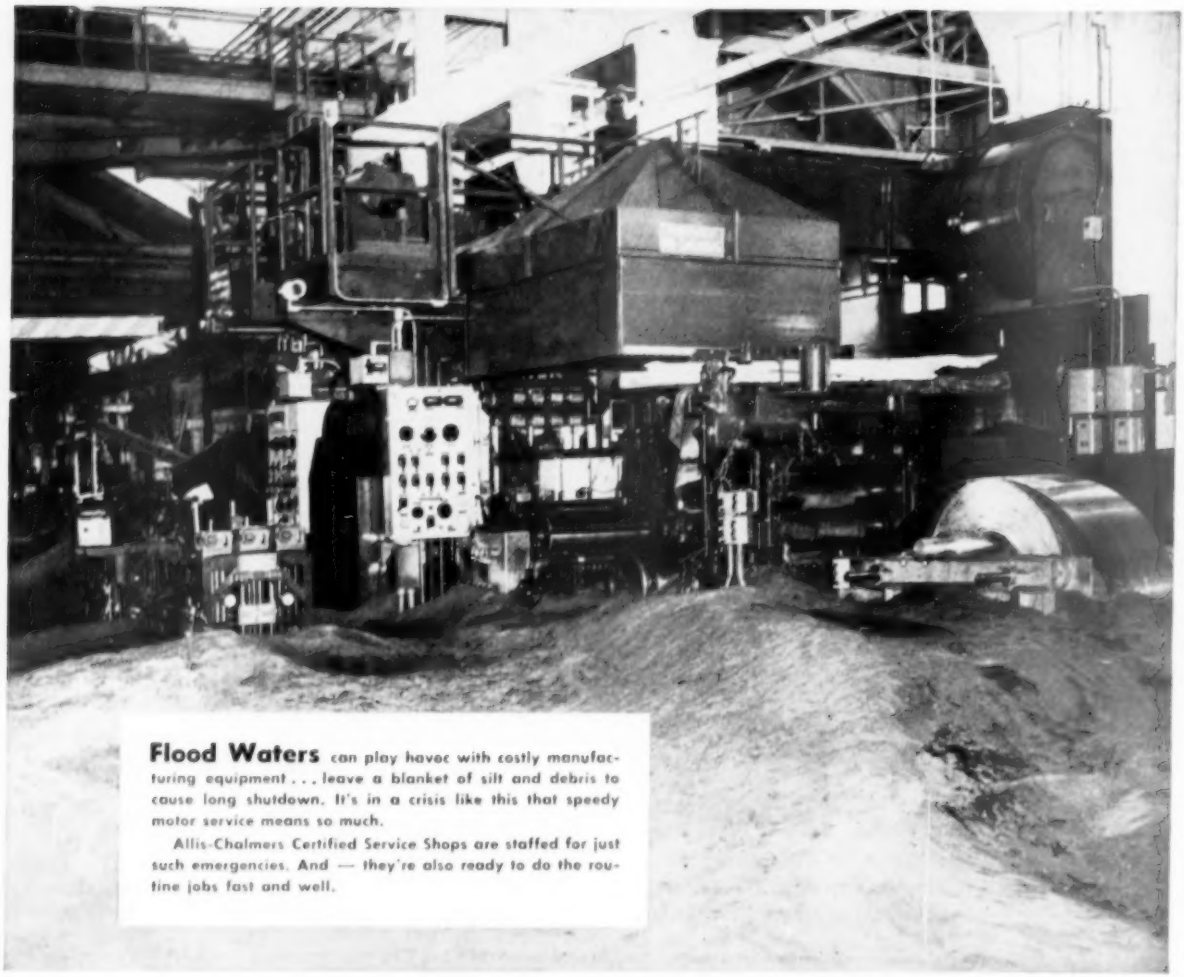
Allis-Chalmers "Certified" Service Shops:

When you need motor help



Flood Waters can play havoc with costly manufacturing equipment . . . leave a blanket of silt and debris to cause long shutdown. It's in a crisis like this that speedy motor service means so much.

Allis-Chalmers Certified Service Shops are staffed for just such emergencies. And — they're also ready to do the routine jobs fast and well.

Catastrophe or Routine Service

Whether it's complete catastrophe or a normal repair job, fast motor service can make a difference of thousands of dollars in lost production. As near as your phone is one of more than 100 Allis-Chalmers Certified Service Shops — ready to help save you production dollars.

These shops have manpower and equipment to perform repairs to Allis-Chalmers rigid standards. Their ability and integrity have been proven by years of service. They can do a good, fast job on any motor or generator, of any make. To locate the Shop in your area, call your nearby A-C district office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wis.

ALLIS-CHALMERS

A-5140

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WHERE TO BUY

KILNS—COOLERS—DRYERS

9' x 120' x ⅝
7'5" x 24' Link-Belt Roto Louvre
5'2" x 16' Link-Belt Roto Louvre
7' x 50' x ½"
5' x 20' x ¼" welded
4' x 36' x ½"

PULVERIZERS—MILLS—CRUSHERS

Jeffrey 30" x 30" 2-roll Crusher
Jeffrey 24" x 30" 2-roll Crusher
Raymond 4-roll High Side
Raymond 5-roll Low Side
3620 Dixie Non Clog Hammermill
20" x 12" Jeffrey Style A, NEW
16" x 8" Jeffrey Style B, NEW

OTHER ITEMS

78" x 36' Akins Duplex Spiral Classifier
4' x 8' Symons Vibrating Screen
4' x 6' Syntron Vibrating Screen
12" Merrick Weightometer
Rotoclave Collector type W Size 36

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HEAT & POWER CO., INC.
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SPECIALS

1—New 6½' x 150' Kiln

DRYERS
6' x 60'

CRUSHERS
1—24" x 36", 18" x 36", 15" x 30", 12" x 24" Jaw Crushers.
2—42" x 16" Allis-Chalmers Crushing Rolls, rebuilt. 36" x 16 rebuilt Sturtevant rolls.
2—24" x 14" Rogers Iron Works Crushing Rolls, Rebuilt.
1—24" x 12" Farrell Bacon Crushing Rolls.
1—6", 10", 16", 20" McCully Superior Gyratory Crushers.
No. 3 up to No. 12 Gyratory Crushers.

BALL & TUBE MILLS
2—5½' x 20', 5' x 22' & 6' x 22' & 7' x 24' Tube Mills.

MISCELLANEOUS
1—8' x 10' Rotary Filter.

We make new dryers and kilns.

Have you any machinery that you want to sell?

W. P. HEINEKEN, INC.
50 Broad St., N.Y. Tel. Wh. 4-4236

WANTED

JAW CRUSHERS, ALL SIZES.
LATE MODEL VIBRATING SCREENS.
GEARMOTORS—3 TO 15 H.P.
GOOD USED TROUGH IDLERS, 18" & 24", ANY AMOUNT.

FOR SALE

DIAMOND PORTABLE CRUSHING PLANT, 15 x 24, PNEUMATICS.
CEDAR RAPIDS 25 YD. SECONDARY PORTABLE CRUSHING PLANT.

Kennedy #19 Secondary Crusher.
Sturtevant #1 Rotary Crusher.
Jeffrey 24 x 18 Pulverizer.
Acme 9" x 16" Jaw Crusher.
Acme 14" x 26" Jaw Crusher.
Climax 10" x 20" Jaw Crusher.
4 Williams Hammermills 50 to 100 HP
8" Encl. Elevator on belt, 57' centers
8" Enclosed Perfect Discharge Elevator
6" Encl. Perfect Discharge Elevator
4' x 40' Dryer, Spare Parts
Two 10' Dia. x 28' Long Tanks
Deister 3 Deck 5' x 10' Screen
Seco Screen 4' x 8' double deck
Seco Screen 4' x 14' triple deck
Two Type 38 4' x 10' Hummers.
Stiffleg Derrick, 15 Ton, 110' Boom
Small Gasoline Water Pumps
Worthington Wagon Drill WP521
DeLaval Worm Gear Reducer with 50 HP Motor 120 R.P.M.
Large V-Belt Drives
3000'—#1114 Chain, 6" P. Complete Sprockets drives.
Misc. Size Large Conveyor Pulleys
Trough Idlers 42" & 48" antifriction.
Plain Brg. Idlers, 5 roll type, 20" to 36".
New Idlers, 18" and 24".

G. A. UNVERZAGT & SONS INC.
136 Colt Street, Irvington 11, N.J.

FOR SALE BY OWNER

1 Motor, electric 40/20/27 H.P. Allis-Chalmers, three speed, 1740/870/1150 R.P.M. open type, 3 phase, 60 cycle, 440 volt,
1 Motor, electric, 10 H.P., G.E. 1160 R.P.M., 220 volt, 3 phase, 60 cycle, double extended shaft,
1 Motor, electric, 40 H.P. Allis-Chalmers, 865 R.P.M., 3 phase, 60 cycle, 440 volt, slip ring open type,
1 Bucket, 1¼ yard capacity for Lull Shovel Loader.
1 Screen 3' by 10' single deck, Allis Chalmers low head.

For further information contact J. H. Clements,

BASIC INCORPORATED
Maple Grove, Ohio; P. O. Fostoria, Ohio

FOR SALE

3 Blaw-Knox Mixers. Completely Rebuilt — Like New

3 Cy Mixing Capacity (4 Cy. Agitators) $2000.00 Each FOB our Plant (No Trucks)

JACKSON READY MIX CONCRETE
Box 1292 — Jackson, Mississippi

Try A Small Ad

For Quick Results

CRANES & SHOVELS

Bantam "M-49" ⅜ yd. Trench Hoe, mounted GMC 6x6.
Sargent "410" New ⅜ yd. Hoe or Crane, mounted on new Crane Carrier. Substantial discount.
Insley "K-12" ½ yd. Trench Hoe, Crane or Dragline, (2).
Marion "331" ¾ yd. Shovel or Dragline.
Byers "83" Used ¾ yd. Crane or Dragline.

LOADERS

Caterpillar "D-4" Diesel Tractor w/Trackson Tractor Shovel. Rebuilt tracks and engine.
Caterpillar "D-6" Diesel Tractor w/Hi-Lift Cable Traxcavator, 1950 model in fine shape.
Allis-Chalmers "HD5G" Used Diesel Tractor w/Tractomotive Front End Loader, Rebuilt tracks and engine.
International "TD-9" Used Diesel Tractor w/ Bucyrus-Erie Hydraulic Tractor-Dozer.
Pettibone "10" Used 1 yd. Tractor Shovel, 4-wheel drive.
Hough "HM" Used 1½ yd. Tractor Shovel, 4-wheel drive.
Barber-Greene "545-46-3" Used Rubber-Tired Bucket Loader.
Haiss "75C" Used Crawler Bucket Loader @ $2000.

MISCELLANEOUS

Gruendler "1024" Roller Bearing Jaw Crusher.
Pettibone-Wood "820A" New Windrow Proportioner. Reduced for quick sale.
Pettibone-Wood "P620" Used Preparizer, G-M Power, Diesel. Will rent or sell.
Jaeger 3 Yd. (4¼ yd. Agitator) Hi-Discharge Mixer, un-mounted, sandblasted, cleaned & painted.
*Jaeger 4½ Yd. Hi-Discharge Transit Mixer, mounted 1953 GMC "450" Tandem Truck.
*GMC 3½ Yd. Hi-Discharge Transit Mixer (1954 model), mounted 1954 Ford C750 Truck (single axle) w/19,000 miles.

NOTE: This Equipment Located in our Yard except as marked*

120 S. Pierpont Phone 4-6706

EIGHMY EQUIPMENT COMPANY
ROCKFORD, ILLINOIS

JAW CRUSHERS

60"x48" to 6"x3"
New and used RELIABLE

"Farrel-Bacon" Jaw Crushers

BACON-PIETSCH CO., INC.
26 Park St., Montclair, N. J.
29 Washington Ave., Hamden, Conn.
Phone Montclair—PI 6-1300

FOR SALE

Complete Quarry—700 Ton Per Day Production

CRUSHERS:
30x42 KVS Blake type Jaw Crusher, 100 HP, 220/440 motor and spare parts.
38½ KVS Gyratory, 75 HP 220/440 motor, late type.
32½ KVS Gyratory with 75 HP synchronous Motor in base, 1951.
25½ KVS Gyratory with 40 HP Motor, 1954.

FEEDERS:
42"x18' Apron Type
30"x16' Apron Type

SCREEN:
2—4'x10', 2d. 1—3'x8', 2d. 1—3'x10', 1d.

BUCKET ELEVATORS:
3—10"x10"x30', 40' & 50', double chain with casing, motor & control.
30"x12"x60' continuous belt type with casing, motor & control.

COMPLETE LIME PLANT
7'x36" HARDINGE CONICAL BALL MILL with 100 HP 220/440 motor Airswept with #24 Clarage fan, 40 HP, 220/440 motor.
4'x30' Dryer, welded construction, late type with geared motor.
#100 FL St. Regis Bagger, 2 spout.

MISCELLANEOUS
20"x32" CEDAR RAPIDS HAMMERMILL, 75 HP Motor, reconditioned.
1—JOY Rotary Drill, Heavy Weight Champion, Model 58BH-26MSI.

ALL EQUIPMENT IN EXCELLENT CONDITION, AVAILABLE AS COMPLETE OPERATION OR CAN BE PURCHASED AS INDIVIDUAL ITEMS.

Charles V. Fish Co., Inc.
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PLANT LIQUIDATIONS

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Illinois-Michigan-Maryland

Texas-New York

KILNS—COOLERS—DRYERS

3—Vulcan 7'6 x 6'6 x 125' Rotary Kilns.
2—Vulcan 6' x 50' Rotary Kilns. ½" shell.
1—Bartlett & Snow 7' x 30' Rotary Dryer, 7/16" shell.
2—Bartlett & Snow 6' x 30' Rotary Dryers, 7/16" shell.
1—Hetherington 5' x 30' Rotary Dryer, 5/8" shell.
1—Ruggles Cole, Class A-8, 5' x 30' Rotary Dryer, 5/8" shell.
3—Louisville 6' x 50' Rotary Steam Tube Dryers.
2—Link Belt 6'4" x 24', 5'2" x 20' Roto-Louvre Dryers.
1—Link Belt 11'6" x 36' Roto-Louvre Dryer.

PULVERIZERS—MILLS—CRUSHERS

1—Allis Chalmers 7' x 24' two compartment Compeb Mill 500 HP motor.
1—Patterson 8' x 18' Silex-Lined Tube Mill.
4—Abbe Engineering 6' x 15' Silex-lined Batch Pebble Mills 40 HP motor.
1—Abbe Engineering 6' x 15' Silex-lined Tube Mill 75 HP motor.
1—International 6' x 7' Porcelain-lined Pebble Mill 30 HP motor.
1—Dixie #3620 Non-Clog Hammer Mill.
1—Kennedy Van Saun 4'6" x 6' Airswept Tube Mill.
1—Williams Slugger Hammer Mill 30 Hp motor.
1—Allis Chalmers 24" x 12" Jaw Crusher.
3—Jeffrey 20" x 12", 15" x 8" Hammer Mills.

SEPARATORS—SCREENS CONVEYORS

1—Raymond 16' dia. Single Whizzer Air Separator 50 HP motor.
1—Tyler Hummer 3' x 5' Vibrating Screen.
5—Link Belt, Allis Chalmers 3' x 8' Screens.
7—Rotex, Robinson Gyratory Sifters 40" x 84", 60" x 84", 30" x 104".
9—Belt Bucket Elevators 30' to 60' centers, 8" x 5", 11" x 6" buckets.
950 feet 9", 10", 12", 14" Screw Conveyor with drives.
1—Steel Rectangular Bin 22'8" x 20'6" x 4' 10" deep, 13° cone bottom.
1—Steel Rectangular Bin 20' x 20' x 30' high, cone bottom.
2—Steel Cylindrical Bins 12'6" dia. x 47' high with 9'6" steel skirt.
1—Steel Cylindrical Bin 11'6" dia. x 28' high with Bucket Elevator and Weigh Scale.

COMPRESSORS

3—Fuller Rotary, Type C-70, 340 CFM, 25 HP motors.
1—Ingersoll Rand PRE2, 1600 CFM, 100 PSI, 300 HP motor.
1—Worthington, Type LTC-6, 800 HP Gas Compressor.
2—Chicago Pneumatic 14" x 7", 434 CFM.

Send For Complete Specifications

WIRE! PHONE! WRITE!

Every Item Priced for Quick Sale

BRILL EQUIPMENT COMPANY

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TRENTON, MICHIGAN TEL: ORLEANS 6-5110

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QUARRY EQUIPMENT

Cedarapids 2540 jaw only. Rebuilt.
Cedarapids 1836 twin jaw crusher. Good.
Cedarapids 936 Jaw Crusher.
Cedarapids 3042 Double Impeller. Rebuilt.
Cedarapids 1024 single pass plant on rubber.
Telsmith 24" cone crusher. Good.
40" x 12' cast steel apron feeder.
12"x35' inclined open elevator. New.
2—Cedarapids 4'x12' double deck AG screens.
Cedarapids 4'x12' triple deck screen.
Cedarapids 4' x 14 double deck screen.
New Holland 4' x 12' double deck screen.
Pioneer 4'x8' double deck screen.
Smithco 24"x87' lattice frame conveyor.
Smithco 24" x 60' portable belt conveyor.
27½ ton, single-compartment 8'x12' bin.
60-ton, two-compartment, 8'x18' storage bin with clam gates.
100-ton, two-compartment, 13'x23' bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also conveyor belting.

SHOVELS AND CRANES

Lorain 820 2-yd. diesel shovel-crane.
Lorain 82, 2-yard diesel shovel.
Lorain 79-J- 1½ yd. diesel dragline.
Lorain 79 1½ yd. diesel shovel.
P&H 655B 1½ yd. diesel dragline.
2—Bucyrus-Erie 38B, 1½-yard diesel draglines.
Lorain L-50K 1 yd. diesel shovel.
Lorain L-50J 1-yd. diesel clam-crane.
Link Belt LS-86 ¾-yard diesel shovel-drag.
Lima 34 Paymaster ¾-yard diesel shovel. Good.
Unit 1020 ¾-yard diesel powered shovel-crane.
Lorain L-28 ¾-yard diesel powered clamshell.
Lorain L-40 ¾-yard diesel clam-drag shovel.
Lorain T1.25S ¾-yd. gas clam-crane.
Unit 614 ½ yd. diesel backhoe.
Insley IC-12 ½-yd. gas dragline.
Lorain MC-504-W crane clam. Reconditioned.
Lorain MC-414 20-ton Moto-Crane.
Browning T-15-C 17½ ton truck crane.
Link Belt HC90 25-ton truck crane.

TRACTORS, TRUCKS, SCRAPERS, ETC.

2—Euclid 7 yard overhung engine scrapers.
5—Euclid 22-ton rear dumps. Excellent.
2—Euclid 15-ton rear dumps. Excellent.
3—Euclid 10-ton rear dumps.
1—Mack LRS 15-ton rear dump.
3—Euclid tractors with 3200 gallon water tank semi-trailer.
1—Pullman S-600, 6 to 8 yard scraper.
1—Caterpillar DW-10 scraper.
1—Caterpillar DW-10 with Athey side dump.
1—Allis Chalmers HD-10 tractor with hydraulic bulldozer blade.
1—International 300 tractor, with loader, backhoe.
1—International TD-14A tractor with PCU.
1—International TD18 with Bucyrus-Erie bulldozer blade. Excellent condition.
1—Caterpillar D-4 with Eimco front loader.
1—Caterpillar D-7 with cable bulldozer blade.
1—Caterpillar D-8 with cable bulldozer blade.
1—Austin Western diesel powered grader.
1—Adams diesel powered grader.

SHOVEL ATTACHMENTS

Lorain 820, 2-yd., 23' boom, 21' stick.
Lorain 50, 1-yd., 21' boom, 17' stick.
Lorain 40, ¾-yd., 19' boom, 16' stick.
Lorain 30A, ½-yd., 16' boom, 13'4" stick.
Osgood 903, 2-yd., 24' boom, 20'6" stick.

BACKHOE ATTACHMENTS

Lorain 40A, 18' boom, 7' stick, 28", 36" or 44" bucket.
Koehring 304, 19' 10" boom, 5'6" stick, 38" bucket.

DIESEL POWER UNITS

Cat. D7700, 74 H.P. at 1000 RPM. Rebuilt.
Cat. D13000, 145 H.P. at 1000 RPM. Rebuilt.
GMC Twin Diesel, rebuilt.
GMC 3021C, 3-cylinder, new.

ASPHALT PLANT

Barber-Greene 848 Model with drier, gradation unit, etc.

AIR COMPRESSORS

105 cu. ft. Ingersoll-Rand gas portable.
125 cu. ft. Jaeger gas portable.
600 cu. ft. Gardner-Denver diesel portable.
500 cu. ft. Ingersoll-Rand, Waukesha power.
600 cu. ft. Gardner-Denver diesel portable.
430 cu. ft. Gardner-Denver two-stage stationary. Rebuilt.

L. B. SMITH, INC.

Camp Hill, Pa.

Phone Harrisburg REgent 7-3431

SPECIAL ITEMS

Lorain Moto Crane 254, 25 tons 60' bm.
Bauerman 2 yd Cableway 800' 150 HP elec. motor New 1952.
5 Euclid 4 F.E.D. End Dump 15 yd Cummins Diesel
Belt conveyors 24", 30", 36" individual units.
Complete 5 Gramm 78 bbl cement bulkers w. Onan engines and compressors w/air outlets into tanks.
B428 tandem Mack batchers; handle 4 batches ea.
Euclid Model 10BV loader, Diesel. 54" belt 38'6"
Sierra Model C30 loader, Cat. D318 Diesel. Belt
Bucket elevator inclined 120'; 14"x8"x8½" buckets
Cat. 6 Traxcavator 18" triple grouser tracks 2¼ yd
Cat. HT4 Traxcavator 1¼ yd hydraulic bucket
Cat D7 Tractor Cat #46 hydraulic control 7S blade

CONCRETE MIXERS

Ransome Model 84S, 2 yd. tilting type
Smith 422, 4 yd. tilting type
Koehring 568 2 yd. tilting type
Koehring 288 1 yd. stationary type

TRUCK MIXERS

30 Jaeger, REX, Smith 3 to 6½ cu. yd. high discharge, horizontal, truck mounted.

CRUSHERS—KILNS—DRYERS

Jaw: Acme 10x20, 15x36, 14x26, 14x28, 10x42, 16x32, 18x32, 25x40 Eagle 10x16, 30x36 Diamond 24x36". Cedar Rapids 10x20, 15x36, 20x36, 25x40. Farrell 10x20, 16x30, 14x36, 18x36, 36x48. Buehanan Type C 30x42, 36x42. Traylor 18x36, 24x36. Allis-Chalmers 30x18. Good Roads 10x30. Telsmith 18x32. Pioneer 30x42. Universal 18x24.
GYRATORY: A-1-Chal 322, 6", 7½", 8, 9, 9K, 10, 16, 20, 30, 42, Telesmith 8H, 28" Intercone.; Kennedy Van Saun 7, 19, 25½, 8, 37½, 38; Traylor TY 1'8", 4' Type TH, TY 3', T2 3', TZ 3'.
ROLL: Cedar Rapids 40x20. Pioneer 40x22. Pioneer 30x18. Telsmith 24x16. Universal 40x24, 18x30.
HAMMERMILL: Jeffrey Type HS 24x20, Type B 36x24, 36x36, 36x42. Eagle 24x24. Stedman 24x30. Cedar Rapids 50-50, 30x33. Penn Model 8XR 100
BALL MILL: Hardinge conical 8'x36", 8'x48", Gates 5'x22", Marcy 77, Int. X-18 5'x6'.
TUBE MILLS: 6'6" x 21' Smidth, 5' x 16' A-C.
ROD MILL: 3' x 8' Denver, 3' x 6' Marcy, 4' x 10' J&C (Never used)
AUTOCLAVES: 2 Jackson & Church 6' x 50', boiler head, 3 8'8" x 120' Besser
CONE: Symons 2', 3', 4', and 4½' coarse bowl.
KILNS: 4'x42', 5'x30', 6'x50'6", 6'4"x45', 6'x72', Vulcan 9x100, 10'6"x105', 8'x124', 6'x90', 6'x72'.
DRYERS: 6'x80, 6'x72', 5'x24', 4'6"x32', 3'6"x20', 6'x50'.
COMPEB MILLS: A-C 7'x24' with motor drive.

CRUSHING PLANTS

Cedar Rapids AA-2225 primary port. Diesel.
Cedar Rapids 3033 hammermill Diesel. Trailer mtd.
Eagle washing plant, classifier sand screws, screen.
C-R "Pitmaster" 10 x 16 jaw, 16 x 6 roll
Pioneer Port. 3042 New 1955 Never used.
Diamond 65 port. gravel 10 x 20 jaw, 30 x 18.
C-R Primary Port. 22 x 36 Jaw. Diesel.
Pioneer Duplex Prim. 936 AFB Second. 2040 rolls.
C-R 2540 Primary with Cat. D13000 Diesel.
Pioneer Port. 11x36 jaw, 40x20 rolls.
Pioneer 24V Gravel Plant.
Amer. Good Roads 15x30, Diesel. Complete.
Universal 20x36 jaw, 30"x18" roll, plant complete.

CONCRETE PLANTS AND EQUIPMENT

C. S. Johnson 150 ton 3 compt. 1245 bbl cement silo
Erie Strayer port. 1 yd. mixer. Complete.
Noble CA 506, 500 ton 6 compt. aggr. bin silo 2000 cu. ft. complete.
Standley 100 yd. 4 compt. aggr. bin 850 bbl. cement silo. Complete. Excellent.
Blaw-Knox 100 ton 3 compartment aggr. 3 beam scales weighbatcher.
Butler 150 ton 3 compt. aggr. bin w/weighbatcher.
Johnson 120 ton 4 aggr. compt. cement compt. 85 bbls US Engrs. Corps spec.
B-K P31G new 1956, 3 compt. 100 tons aggr. 400 bbls HI LO cement, 4 yd Smith Mixers.
Erie CTES 180 yd 4 compt. 3 aggr. one cement 310 bbls 850 bbls silos. New 1955.
Johnson 105 ton 3 compartment aggregate
Cement bin 250 bbls overhead storage with 375 bbls cement recirculator ground storage silo
Fuller Kinyon Type C 6" cement unloader.
Johnson 105T, 3compt. aggr., batcher, comp., new '54.
Rex 140, 190, 200 Pumpcretes, complete.

SAND AND GRAVEL HYDRAULIC DREDGES

Morris 16"x14". Portable. Electric.
10" Portable Diesel powered. Complete.
12" Diesel powered, pontoon mounted. Complete.
Ellicott 8" with cutter. Diesel Hull 48'x18'x3'6".
20" Ellicott Diesel 155'x49'x8'.
8" Hydraulic Diesel. On 32'x8' steel pontoons.
Amaco 10" Diesel power portable. Excellent.
6" portable Diesel complete with cutters, etc.
8" H&B twin Diesel drive. Complete.

SCREENS

Tyler F-360 4'x12' 2 deck w/spray bars.
Trommel 6'x45' 75 H.P. elec. motor.
Kennedy Van Saun 3'x10' 3 deck.
Tyler-Niagara 3 deck 7½ H.P. A.C. motor.
New Holland 4'x12" 4 deck.
Telsmith 5'x12' dbl deck elec. motor

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CO 7-0723 Cable: RICHWALSH

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Available throughout the U.S.—Items you need may be available near you. Your inquires would be appreciated.

Buildings	Draglines	Loaders	Pavers
Bins	Ditchers	Locomotives	Rollers
Barges	Dredges	Rail	Rail
Buckets	Drills	Mixers	Scales
Belting	Derricks	Motors	Screens
Cableways	Engines	Mills	Stackliners
Cars	Excavators	Machine-tools	Shovels
Compressors	Feeders		Tanks
	Graders	Pulverizers	Tractors
Conveyors	Generators	Pipe	Trailers
Crushers	Hoists	Pumps	Etc., Etc.
Dryers	Kilns		

(I can sell your surplus equipment)

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MARIETTA, KANSAS

FOR SALE

12" Agipeller (like new).

Barber-Greene Model 545, Bucket Loader

Lidgerwood 2 Drum hoist, Serial No. 4131 (includes cast motor base)

2 yd. Drag Bucket (used with above hoist)

Acme Fuel & Material Co.

Box 34, Muscatine, Iowa

BONDED EQUIPMENT BARGAINS

NEW CURRENT MODELS IMMEDIATE SHIPMENT FROM OUR FACTORY - WRITE, WIRE OR PHONE

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

BONDED ® 8" Jr. I Beam Frame Conveyor

BONDED ® Truss Frame Conveyors

Complete Pre-Fab sections of 8" Jr. I Beam or Truss Conveyors, quickly and easily joined together on the job. Both types of conveyors are equipped with 5" roll diam. idlers and return rolls, 20" diam head pulley and 16" diam tail pulley mounted on 2 1/4" or 2 7/16" diam. shaft. Bonded Truss Frame Conveyors are built like a bridge. Designed for long free spans to 50 feet. Constructed of structural angle and reinforced with steel plate. Special high-tensile bolts are used to join all sections. Prices listed are for I Beam Frame Construction. Prices of Truss Frame Conveyors quoted on request. We take our loss on our stock of short length belting. You can save as much as 50% on the BONDED CONVEYOR SPECIALS, with conveyor belting in two pieces. Belt is new 4-ply 28-oz. duck, 1/8" top rubber cover x 1/32" bottom cover and is fresh stock made by leading manufacturers.

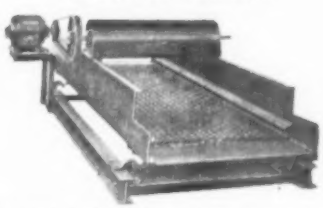
CONVEYOR PRICES INCLUDE BELTING

Belt Width	Length of Conveyor	List Price	Sale Price
14"	25'	$1397	$722
14"	85'	3377	1733
16"	20'	1262	636
16"	60'	2662	1359
18"	25'	1477	794
18"	70'	3142	1648
18"	100'	4252	2220
20"	25'	1517	828
20"	75'	3467	1838
24"	25'	1590	806
24"	70'	3480	1875
24"	120'	5580	2950
30"	50'	2911	1617
30"	90'	4831	2614
36"	25'	1818	1118
36"	60'	3638	2096
14"	50'	$2222	$1144
14"	125'	4697	2407
16"	45'	2137	1088
16"	90'	3712	1900
18"	45'	2217	1166
18"	85'	3697	1933
18"	130'	5362	2797
20"	60'	2882	1533
20"	90'	4052	2145
24"	45'	2430	1330
24"	100'	4740	2514
24"	150'	6840	3608
30"	70'	3871	2119
30"	140'	7231	3852
36"	45'	2585	1678
36"	100'	5718	3214

For conveyors longer or shorter than those listed above, add or deduct the following per foot prices according to belt width. Prices include belting.

For 14" belt, add $16.84 per foot
For 16" belt, add $18.04 per foot
For 18" belt, add $19.24 per foot
For 20" belt, add $20.37 per foot
For 24" belt, add $21.78 per foot
For 30" belt, add $24.75 per foot
For 36" belt, add $27.95 per foot
Write for Bulletins #1138 and #1189

NEW BONDED® GENERAL DUTY VIBRATING SCREENS



NEW BONDED® HEAVY DUTY VIBRATING SCREENS

For mineral, chemical and other industrial products. Fast, efficient and economical for cleaning, sizing, grading, dewatering. Made in all metals, including stainless steel. Enclosed models for hot materials or dust control. Bonded screens are built for any screening operation, wet or dry.

GENERAL DUTY SCREENS, TYPE AS: Eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. Write for Bulletin No. 1086.
Priced from $443.00

HEAVY DUTY MODELS, TYPE BS: Four bearing positive throw eccentric shafts; 3' x 6' to 5' x 14', 1 to 5 decks. Write for Bulletin No. 1087.
Priced from $1,160.00

NEW BONDED® FEEDERS

For high tonnage and controlled feed of Aggregate, Sand, Gravel, Crushed Stone, Clay products, Metallic Ores, Coal, Cinders and almost any other bulk material to Crushers, Screens, Conveyors, Mills and other process machinery. All models available in abrasion resistant alloy steel plate. Capacities to 250 tons per hour. Write for Bull. #1140 & #1182.
Priced from $275.00

NEW BONDED BUCKET ELEVATORS

Open or Enclosed Vertical or Inclined Bucket Elevators with continuous or spaced buckets mounted on chain or belt. For small to medium size lumps, fine abrasive material such as dry sand, coke breeze, wet slag, many other bulk materials. Prices quoted on request. Write for Bull. #1047.

BONDED CONVEYOR ACCESSORIES

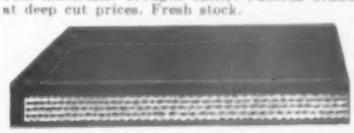
Head & Tail $149.00

Wing Pulley $71.00

Guide Idler $14.50

NEW CONVEYOR BELTING SAVE UP TO 30%

Heavy duty 4-ply, 28 oz. duck 1/8" top rubber cover by 1/32" bottom cover 12# to 15# average friction pull; 800# to 1000# average cover tensile rubber belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stock.



Width	Ply	List Price	Sale Price
14"	4	$3.63 foot	$2.83 foot
16"	4	4.08 foot	2.97 foot
18"	4	4.51 foot	3.29 foot
20"	4	4.97 foot	3.80 foot
24"	4	5.85 foot	4.26 foot
30"	4	7.18 foot	5.21 foot
36"	4	8.51 foot	6.18 foot

A high grade of heavy duty 4 and 5-ply, 28 oz. duck, 1/8" top rubber cover x 1/32" bottom rubber cover, 16# to 19# average friction pull, 2500# to 3000# average cover tensile belting. This belt is for more severe service, high tonnages and abrasion resistance. For handling stone, mineral ores, concrete, cement, coal and other similar materials, both wet and dry. Belt has molded rubber edge. Skim coat between plies.

Width	Ply	List Price	Sale Price
14"	4	$ 4.31 foot	$3.06 foot
16"	4	4.85 foot	3.46 foot
18"	4	5.39 foot	3.83 foot
20"	4	5.90 foot	4.37 foot
24"	4	6.94 foot	4.94 foot
30"	4	8.53 foot	6.07 foot
36"	4	10.09 foot	7.35 foot
24"	5	8.14 foot	5.78 foot

The following belts are 5-ply, 32 oz. duck:

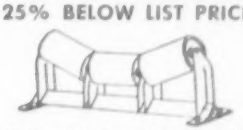
Width	Top Cover	Bottom Cover	List Price	Sale Price
24"	1/8"	1/16"	$ 8.82 foot	$ 6.42 foot
30"	1/8"	1/16"	10.84 foot	7.89 foot
36"	1/16"	1/16"	14.64 foot	10.66 foot

A heavier duty 28 oz. duck belt with 1/8" top rubber cover x 1/32" bottom rubber cover having 3500# to 4000# average cover tensile, 20# to 24# average friction pull. For the higher abrasion resistance applications and handling of materials where more strength is required to give greater belt life. Skim coat between plies.

Width	Ply	List Price	Sale Price
16"	4	$5.48 foot	$3.78 foot
18"	4	6.10 foot	4.20 foot
20"	4	6.68 foot	4.79 foot
24"	4	7.87 foot	5.41 foot
30"	4	9.70 foot	6.65 foot
24"	5	9.11 foot	6.31 foot

Other widths, plies, duck weights and cover thicknesses available at low prices. Write for Free Sample.

NEW IDLERS AND RETURN ROLLS 25% BELOW LIST PRICE



3-roll, 5" diameter Troughing Idlers for:

14" belt	$18.50	24" belt	$21.25
16" belt	19.25	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50

1-roll, 5" diameter Return Idlers for:

14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well-known makes. Furnished with easily replaceable prelubricated Sealed ball bearings. Also can be furnished with greasable type Alemite Fitted bearings at slight additional cost. Maintenance is negligible. Bonded Rubber Disc Impact Idlers priced from $61.00. Write For Bulletin #1138.

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Crushing and Milling Equipment Located in New Jersey

Gyratory Crusher:
Allis Chalmers 8-K, spare parts, extra shaft.

Smooth Roll Crushers . . .
1—Traylor, 54" x 24", type "AA" (2 motors)
2—Superiors, 16" x 36" (2 motors)
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Marcy Rod Mill, 3' x 6' with spare parts
Traylor Ball Mill 7' x 6' with 250 HP motor
(several tons of balls available)

Trough Belt Conveyors . . .
All have 20" Rex Roller Bearing Idlers
1—14" x 166' has 35 troughing idlers
1—14" x 36' has 7 troughing idlers
4—18" x 20' has 3 troughing idlers
1—18" x 40' has 11 troughing idlers
1—20" x 29' has 5 troughing idlers
1—20" x 36' has 7 troughing idlers
1—36" x 21' has 6 troughing idlers

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6 bins, 16' diameter x 14½' heighth. Cone tops and flat bottoms. Mounted on 10" H-beams with 15' clearance under bins.

Cone Tank . . . .
1—16' diameter with 60° slope.

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7—Selectro 4' x 10' Single deck
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8—Tyrock 4' x 10' Single deck.

Track Scale . . . .
1—Fairbanks Single Beam track scale 300,000# capacity

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75—Dodge Timkin Roller Bearing 1⅞" bore
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Schnauble Multi-Wash Collector type H-B-6P

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Chicago Pneumatic 17" x 10" x 12" rated 788 CFM at 125#

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1—Vulcan Mine Hoist, 42" x 60" drum
1—Exeter double drum hoist, 23" x 24" drums

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1—Wilbraham Green, Size 19.55 x 24
2—Roots Connersville, Size 3

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Over two hundred motors, Slip ring, gear head, etc. Many sizes and speeds.

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7400 Marion Dragline, 160', 13 yd.
625 Page Diesel Drag, 150', 10 yd.
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111-M Marion Drag, 100', 4 yd.
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DIAMOND 24 x 36 rb. Jaw Crusher Portable Primary w/apron feeder, vibr. grizzly, undercon-veyor, diesel power, tandem rubber. Diamond Portable Secondary w/40 x 20 rb. rolls, 4 x 12 screen, rotovator, diesel power, tandem rubber. Good. $28,500 Texas. Rental Purchase.

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TELSMITH 24 x 16 rb. Double Roll Crusher, good. $1750 Yard.

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P&H 255A Shovel Fronts, brand new. Bargain. $1250 each. Yard.

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WENZEL MACHINERY CO.
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BUCYRUS ERIE 7-W DRAGLINE

10 x 78 DRYER. 4' & 3' SYMONS cones.
Pioneer 54 x 24 double roll. 5360 Impactor.
6 x 14 rod mill. 42 x 48 & 84 x 66 jaws.
CRUSHING EQUIPMENT: Jaw Crushers—Rolls—Cones—Gyratories—Rod, Ball & Tube Mills—Hammermills—Impactors—Portable Plants. Bins — Bucket Elevators — Classifiers — Compressors — Conveyors — Cranes — Derricks — Drills — Dump Cars — Engines — Feeders — Generators — Hoists — Kilns & Dryers — Locomotives — Motors — Pumps — Screens — Shovels & Draglines — Transformers — Euclid Trucks — Weightometers.

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CLAM SHELL BUCKET: Williams 1¼ yd. capacity, excellent condition.

DRYERS & KILNS: 48" dia., 21' long Dryer, complete with all auxiliary equipment. Rotary Kiln 9' x 134 ft. with large quantity of new spare parts.

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BUCYRUS Revolving **SHOVELS,** Model 50-B; 320-B
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HARDINGE CONICAL MILL 10' dia. x 96",
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CONVEYORS: 18x70, 30x200, 36x151, 42x160
MILLS: 3x8, 8x8, 6½x6 Ball, 4½' Tornado, 2MP Mikro, Kent 27, 3033, 4033 CH Hammer.
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GRIZZLY ROLLS—Frame containing six 12" dia x 36" ribbed live rollers.

HAMMERMILL—Penna S-6, 42" x 32".

PUG MILL—Chambers 30" x 14'7" with drive.

MOTORS—25 Slve Brg Sq Cage 440/3/60. List price less 80%.

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AN AUCTION—CONSTRUCTION & ROCK EQUIPMENT

FRIDAY, DECEMBER 6, 10 A.M. LINCOLNTON, NORTH CAROLINA

LOCATION: The Indian Creek Mine, 2½ miles South of Lincolnton. Lincolnton is 32 miles Northwest of Charlotte, N. C.

NOTE: This equipment was all purchased in 1954 by Lithium Corporation of America for the development of Lithium Ore Deposits. This program was completed by August, 1956, and the equipment has been stored since. It has been shedded and well maintained. This is mostly current low-hour equipment in very good condition.

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WRITE-WIRE-CALL Auctioneers for complete list. INSPECT the equipment at the sale site at any time. TERMS: Complete Payment Sale Day: Cashier's Checks, Certified Checks, Bank Letters. This is an excellent opportunity to buy very good, well cared for rock equipment.

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Owner
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For equipment information contact: Mr. Joe McClure, Mines Manager, Bessemer City, N. C. Ph. MAin 9-2282.

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150 HP Amer. #140 3d gas hoist & swinger
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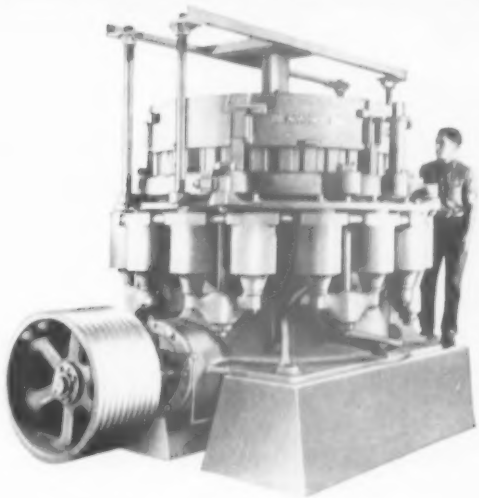

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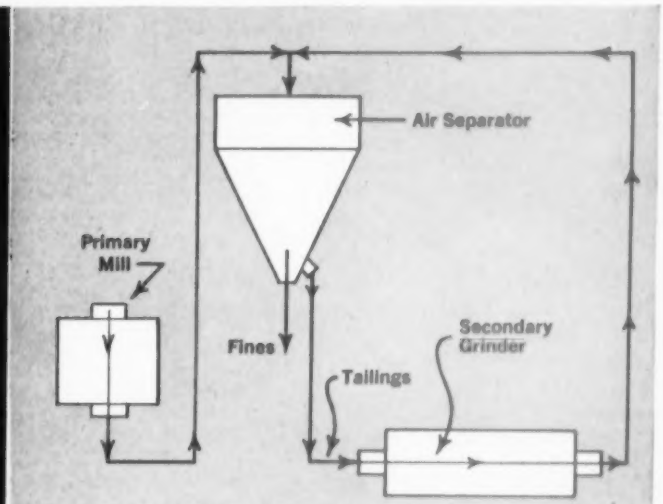

Primary Mill runs open, starting circulating load through air separator. Desired fines are discharged, and oversize is fed to secondary grinder and then returns to air separator for further classification.

LET STURTEVANT AIR SEPARATION HELP YOUR SYSTEM PRODUCE UP TO 300% MORE 40 TO 400 MESH FINES — CUT POWER COSTS AS MUCH AS 50%

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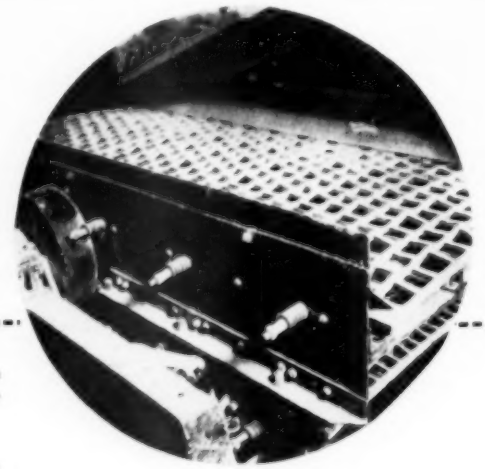

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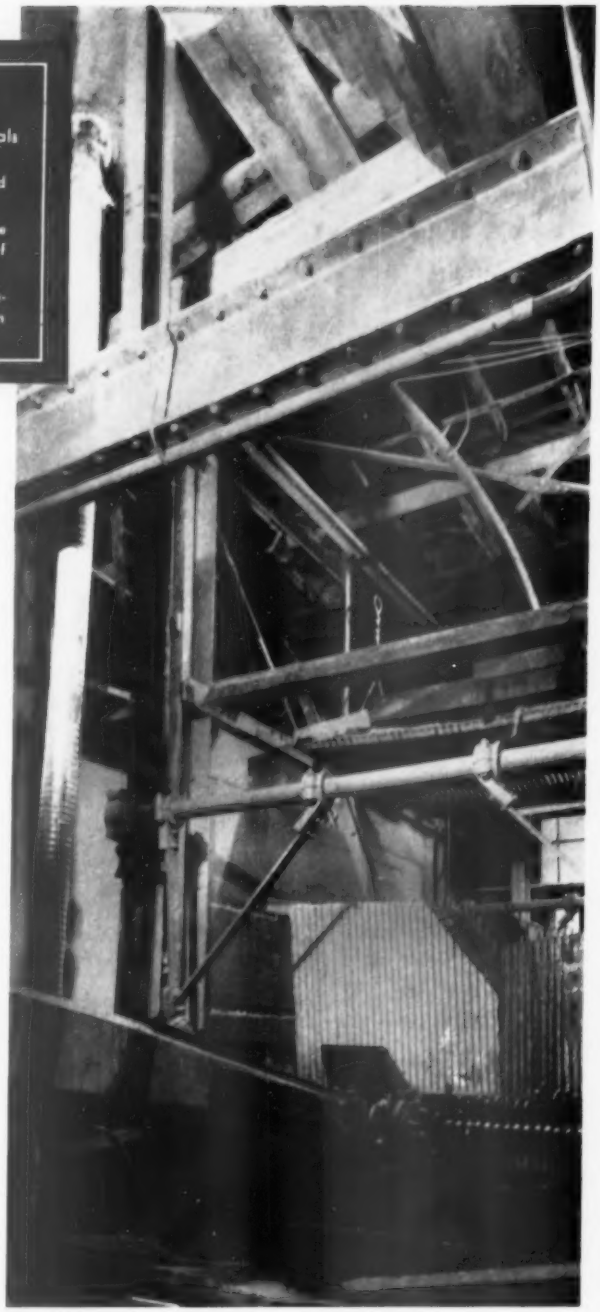

Twice a steel pipe's life—still has years to go

The silica-sand-and-water that's so effective at cutting solid marble also gouges through steel pipe in short order. In fact, the heaviest pipe this Great Lakes' firm used on its cutter barely made it to the 2½-year mark. And throughout its life, repairing leaks had been an all-too-frequent chore.

But a suggestion by the G.T.M.—Goodyear Technical Man—changed all that. For the bigger pump-to-storage-tank line, he specified Diversipipe—rugged rubber pipe with phenomenal abrasion-resistance. And it was Style M Sandblast Hose for the tank-to-saw-blade link—where more flexibility is needed. The pay-off: The G.T.M.'s recommendation *has already put in close to 5 years of trouble-free service—looks good for many more.*

What's more, time- and money-saving tips like this are everyday routine with the G.T.M.—wherever industrial rubber products are used. See for yourself—by contacting him through your Goodyear Distributor—or writing Goodyear, Industrial Products Division, Akron 16, Ohio.

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